This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Major, Municipal permit. The discharge results from the operation of a 1.0 MGD wastewater treatment plant. This permit action consists of updating the WQ and updating boilerplate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq.

1. Facility Name and Mailing Address: Dahlgren Wastewater Treatment Plant
10459 Courthouse Drive, Suite 201
King George, VA 22485
SIC Code : 4952 WWTP

Facility Location: 16383 Dahlgren Road
King George, VA 22485
County: King George

Facility Contact Name: Jeff Hockaday
Manager of Wastewater Operations
Telephone Number: 540-775-2746

2. Permit No.: VA0026514
Expiration Date of previous permit: March 11, 2008

Other VPDES Permits associated with this facility: VAN010060 (King George County – Potomac River Aggregate)

Other Permits associated with this facility: None

E2/E3/E4 Status: N/A

3. Owner Name: King George County Service Authority

Owner Contact/Title: Christopher Thomas, General Manager
Telephone Number: 540-775-2746

4. Application Complete Date: January 17, 2008

Permit Drafted By: Joan C. Crowther
Date Drafted: August 12, 2008

Draft Permit Reviewed By: Anna Westernik
Date Reviewed: August 13, 2008

Alison Thompson
September 25, 2008

Public Comment Period : Start Date: December 3, 2009
End Date: January 5, 2009

5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination

Receiving Stream Name:	Williams Creek		
Drainage Area at Outfall:	4.5 sq.mi.	River Mile:	0.05
Stream Basin:	Potomac River	Subbasin:	Potomac River
Section:	2	Stream Class:	II
Special Standards:	a	Waterbody ID:	VAN-A30E
7Q10 Low Flow:	Tidal	7Q10 High Flow:	N/A
1Q10 Low Flow:	N/A	1Q10 High Flow:	N/A
Harmonic Mean Flow:	N/A	30Q5 Flow:	N/A
303(d) Listed:	Yes	30Q10 Flow:	N/A
TMDL Approved:	Yes, PCBs in Fish tissue	Date TMDL Approved:	September 2007 – SWCB October 2007 - EPA

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

- ✓ State Water Control Law
- ✓ Clean Water Act
- ✓ VPDES Permit Regulation
- ✓ EPA NPDES Regulation
- ✓ EPA Guidelines
- ✓ Water Quality Standards
- ___ Other

7. Licensed Operator Requirements: Class I

8. Reliability Class: Class I

9. Permit Characterization:

	Private	✓	Effluent Limited	✓	Possible Interstate Effect
	Federal	✓	Water Quality Limited		Compliance Schedule Required
	State	✓	Toxics Monitoring Program Required		Interim Limits in Permit
✓	POTW	✓	Pretreatment Program Required		Interim Limits in Other Document
✓	TMDL				

10. Wastewater Sources and Treatment Description:

The 1.0 MGD wastewater facility consists of flow equalization, rotating influent screen, a 4-channel oxidation ditch, flash mixer for alum addition, three secondary clarifiers operated in parallel, sand filtration, ultra-violet light disinfections, an effluent pumping station and a submerged outfall near the mouth of Williams Creek and its confluence with Upper Machodoc Creek. The CTO for the 1.0 MGD facility was issued on January 16, 2008.

See Attachment 2 for a facility schematic/diagram.

TABLE No. 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flow	Outfall Latitude and Longitude
001	Domestic Wastewater	See Item 10 above.	1.0 MGD	38° 19' 24" N 77° 03' 11" W

Attachment 3 is a copy of the U.S.G.S. Topographic map (Dahlgren Quad), (DEQ #181D) identifying the Outfall No. 001 location and the DEQ ambient water quality monitoring stations listed in Item 12 of the Fact Sheet.

11. Sludge Treatment and Disposal Methods:

Sewage sludge from the various King George wastewater facilities is taken to the Dahlgren Wastewater Treatment Plant and combined in the aerobic digesters. The sludge is treated by aerobic digestion then de-watered using a belt filter press. The de-watered sludge is hauled to the King George County Landfill, which is operated by the Waste Management Corporation, for final disposal.

12. Discharges, Intakes, Monitoring Stations, Other Items in Vicinity of Discharge

TABLE No. 2 - Summary of DEQ's Ambient Water Quality Monitoring Stations on Upper Machodoc Creek and Williams Creek

DEQ Station Rivermile	DEQ Ambient Water Quality Monitoring Station Description
1AUMC000.00	Upper Machodoc Creek; in channel at mouth at county line; 38º 18' 52"/ 77º 01' 42"; October 1968 – August 1978
1AUMC001.36	Upper Machodoc Creek; near mouth of Williams Creek; 38º 19' 15"/ 77º 03' 08"; May 1977 – August 1978
1AWLL000.00	Williams Creek; at mouth of Williams Creek; 38º 19' 19"/ 77º 03' 11"; May 1977 – August 1978

TABLE No. 2 - Summary of DEQ's Ambient Water Quality Monitoring Stations on Upper Machodoc Creek and Williams Creek	
DEQ Station Rivermile	**DEQ Ambient Water Quality Monitoring Station Description**
1AWLL001.30	Williams Creek; Route 206; 38º 20' 21"/ 77º 03' 34"; April 1973 – April 2008

TABLE No. 3 – Summary of VPDES Permit Facilities that discharge in the vicinity	
VPDES Permit Number	**Description of VPDES Permit Facility**
VA0073636	United States Naval Surface Warfare Center; Industrial Discharge; 38º 19' 18"/ 77º 01' 34"; Upper Machodoc Creek is the receiving stream.
VA0021067	United States Naval Surface Warfare Center; Municipal Discharge; 38º 19' 15"/ 77º 01' 40"; Upper Machodoc Creek is the receiving stream.

13. Material Storage:

TABLE No. 4 - Material Storage		
Materials Description	**Volume Stored**	**Spill/Stormwater Prevention Measures**
Aluminum Sulfate (ground)	60-50 lb. bags	Stored in the chemical belt press building
Polymer, Everfloc 2019	1 each – 450 lb. drum	Stored in the chemical belt press building
Soda Ash	60- 50 lb.	Chemical building

14. Site Inspection: Performed by Terry Nelson, Water Compliance, on October 10, 2007. Technical inspection report dated November 8, 2007 can be found in the 2008 Permit Reissuance File.

15. Receiving Stream Water Quality and Water Quality Standards:

a) Ambient Water Quality Data

DEQ has had numerous ambient water quality monitoring stations located on either Williams Creek or Upper Machodoc Creek near the Dahlgren Wastewater Treatment Plant since 1968. Attachment 3 and Table No. 2 summarizes these stations and their locations. Currently, the only active monitoring station is located on Williams Creek at the Route 206 Bridge which is approximately 0.1 miles above the facility's discharge point. Data collected from this station between the period of February 2000 and April 2008 was used to calculate the hardness-dependent and ammonia criteria and subsequent wasteload allocations. (Attachment 4).

The 2006 305(b)/303(d) Integrated Report is the last version approved by EPA at the time of writing this fact sheet. The report provided the following findings for the facility's receiving stream and downstream. The 2004 TMDL ID for this segment was VAN-A30E-04. Ambient monitoring finds dissolved oxygen and pH impairments, resulting in an impaired classification for the aquatic life use. An observed effect for total phosphorus was noted. While one exceedance in seven sampling events is classified as insufficient information, the 2004 assessment showed that two of 16 samples (12.5%) exceeded the total phosphorus screening value of 0.20 mg/L. Additionally, the National Oceanic and Atmospheric Administration (NOAA) Effects Range-Median concentration sediment screening values of 0.71 parts per million (dry weight) for mercury (Hg) was exceeded in a sediment sample collected in 2001, also noted an observed effect for the aquatic life use. An open water assessment of dissolved oxygen values during the summer season between 2002 and 2004 showed that the Potomac Mesohaline (POTMH) was not supporting. The

segment was 0.83 percent above the cumulative frequency distribution (CFD). Finally, because submerged aquatic vegetation subuse of the aquatic life use was not met, the segment is considered impaired for the aquatic life use.

The shellfish use is categorized as impaired due to a Virginia Department of Health, Division of Shellfish Sanitation, Notice and Description of Shellfish Area Condemnation Number 001A-036, Upper Machodoc Creek. Note that prior condemnations prior to the 2004 assessment referred to this section as Section D.

As one fecal coliform bacteria exceedance exists in six sampling events, there was insufficient data to determine support for the recreational use. The wildlife use is considered fully supporting. The fish consumption use was not assessed.

As noted above, there are numerous impairments for the receiving portion of Williams Creek. These impairments include dissolved oxygen, pH, fecal coliform for shellfish, and insufficient acreage of submerged aquatic vegetation (SAV), as noted by an aquatic plants (macrophytes) impairment. Additionally, there is a downstream PCB in fish tissue impairment for the tidal portion of Upper Machodoc Creek. Please see Attachment 5 for the Planning Statement dated December 17, 2007.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2006 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment.

In response, the Virginia General Assembly amended the State Water Control Law in 2005 to include the *Chesapeake Bay Watershed Nutrient Credit Exchange Program*. This statute set forth total nitrogen and total phosphorus discharge restrictions within the bay watershed. Concurrently, the State Water Control Board adopted new water quality criteria for the Chesapeake Bay and its tidal tributaries. These actions necessitate the evaluation and the inclusion of nitrogen and phosphorus limits on discharges within the bay watershed.

b) Receiving Stream Water Quality Criteria

Part IX of 9 VAC 25-260 (360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream, Williams Creek, is located within Section 2 of the Potomac River Basin, and classified as a Class II water.

Class II tidal waters in the Chesapeake Bay and it tidal tributaries must meet dissolved oxygen concentrations as specified in 9 VAC 25-260-185 and maintain a pH of 6.0-9.0 standard units as specified in 9 VAC 25-260-50. In the Northern Virginia area, Class II waters must meet the Migratory Fish Spawning and Nursery Designated Use from February 1 through May 31. For the remainder of the year, these tidal waters must meet the Open Water use. The applicable dissolved oxygen concentrations are presented in Attachment 6, Dissolved Oxygen Criteria for Class II Waters.

Attachment 7 details other water quality criteria applicable to the receiving stream.

Ammonia:

In the 2003 permit reissuance process, it was the staff's best professional judgment to evaluate the receiving stream, Williams Creek, as freshwater instead of saltwater as designated in the Water Quality Standards due to what was considered low salinity (average 4.49 mg/ml) at the Route 206; therefore, the ammonia and other toxic parameters were evaluated and determined using the freshwater water quality criteria.

During this permit reissuance process, it is staff's best professional judgment to evaluate the receiving stream in accordance with the Water Quality Standard Regulation designation recognizing the Upper Machodoc and Williams Creeks are within the Mesohaline portion of the Potomac River estuary; therefore,

the receiving stream criteria was evaluated and determined using the saltwater wasteload criteria. By evaluating the receiving stream in accordance with the Water Quality Standards designation, the permit limits are being established consistently with other facilities discharging with similar receiving stream conditions.

Staff has evaluated the receiving stream ambient monitoring data and determined the pH and temperature 90th percentile were 7.6 S.U. and 27.8 ºC, respectively for the period of February 2000 to April 2008. The 90th percentile for the effluent pH and temperature was 8.3 S.U. and 26ºC, respectively for the period of January 2006 to June 2008. The effluent data can be found in Attachment 8 and the stream data can be found in Attachment 4.

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/l calcium carbonate). The average hardness of the receiving stream is 204 mg/l. The average hardness data was determined by averaging the hardness data collected at three locations (1AWLL000.00, 1AUMC000.00 and 1AUMC001.36) on May 13, 1977. The permittee started to sample and analyze the facility's effluent for Total Hardess in August 2008. Their first hardness value of 32 mg/L was used to determine the metals criteria. The hardness-dependent metals criteria shown in Attachment 7 are based on these values.

Bacteria Criteria: The Virginia Water Quality Standards (9 VAC 25-260-170 B.) states sewage discharges shall be disinfected to achieve the following criteria:

1) enterococci bacteria per 100 ml of water shall not exceed the following:

Saltwater Parameter	Geometric Mean[1]	Single Sample Maximum
enterococci	35	104

[1]For two or more samples [taken during any calendar month].

c) Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9 VAC 25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Williams Creek, is located within Section 2 of the Potomac River Basin. This section has been designated with a special standard of "a".

The receiving stream has been designated with a special standard of "a." According to 9 VAC 25-260-310.a, Special Standard a applies to all open ocean or estuarine waters capable of propagating shellfish or in specific areas where public or leased private shellfish beds are present, including those waters on which condemnation or restriction classifications are established by the State Department of Health. The fecal coliform bacteria standard is as follows: the geometric mean fecal coliform value for a sampling station shall not exceed an MPN (Most probable number) of 14 per 100 milliliters of sample and the 90th percentile shall not exceed 43 for a 5-tube, 3-dilution or 49 for a 3-tube, 3-dilution test. The shellfish are not to be contaminated by radionuclides, pesticides, herbicides, or fecal material that the consumption of shellfish might be hazardous. This same standard is also contained in 9 VAC 25-260-160. Fecal Coliform Bacteria; Shellfish Waters. This standard is used for the interpretation of instream monitoring data and not for establishing fecal coliform effluent limitations. In accordance with the VPDES Permit Manual, Section MN-3.22.B.g, for wastewater discharges into shellfish waters, the permits are to continue to limit fecal coliform bacteria with the effluent limit of 200 per 100 milliliters applied as a monthly average.

d) Adjacent State's Water Quality Standards

Dahlgren Wastewater Treatment Plant discharges to Williams Creek then to Upper Machodoc Creek, which is a tributary to the Potomac River. Staff reviewed the State of Maryland's Water Quality

Standards (26.08.02.03-2 – Numerical Criteria for Toxic Substances in Surface Waters) and believes that the effluent limitations established in this permit will comply with Maryland's water quality standards at the point Upper Machodoc Creek enters the Potomac River. The draft permit was sent to the State of Maryland for their review and no comments received.

e) Threatened or Endangered Species

The Virginia DGIF Fish and Wildlife Information System Database was searched for records to determine if there are threatened or endangered species in the vicinity of the discharge. The bald eagle (*Haliaeetus leaucocephalus)* was identified within a 2 mile radius of the discharge. The bald eagle is listed as a federal Species of Concern and State Threatened species. The limits proposed in this draft permit are protective of the Virginia Water Quality Standards and therefore, protect the threatened and endangered species found near the discharge.

The stream that the facility discharges to is within a reach identified as having an Anadromous Fish Use. It is staff's best professional judgment that the proposed limits are protective of this use.

Please see Attachment 9 for the database search reports.

16. Antidegradation (9 VAC 25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on an evaluation made during the 2003 permit reissuance process and still remain valid. The monitoring data summarized for the 305(b) water quality assessment report shows that the Dissolved Oxygen criterion was exceeded; and, the 1987 stream model that was used to establish the BOD_5 and Dissolved Oxygen effluent limitations to meet water quality standards. Antidegradation does not apply. Permit limits proposed have been established by determining wasteload allocations that will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development :

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated and the WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are the calculated using the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a) Effluent Screening:

It was not until January 16, 2008 that this facility received the Certificate to Operate at the 1.0 MGD tier flow designation; therefore, their VPDES Permit Application did not contain any extended effluent testing data required for wastewater treatment plants with a design flow of 1.0 MGD or greater. As a requirement for this permit to be reissued, EPA Form 2A requires the permittee to perform this additional extended effluent

monitoring. It is staff's best professional judgement to wait for this extended effluent monitoring until the next permit reissuance; therefore, Attachment A requesting this additional monitoring will not be included in this permit.

b) Mixing Zones and Wasteload Allocations (WLAs):

The usual steady state complete mix equations used to establish the Wasteload allocations (WLAs) for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria cannot be applied for this facility's discharge point. The receiving stream is a large tidal estuary that experiences significant tidal fluxes. Therefore, the following will be applied to Williams Creek at the discharge point.

For tidal estuaries, WLAs should be based on site-specific data of waste dispersion or dilution. King George County's consulting engineers, Draper Aden Associates, conducted modeling of Upper Machodoc and Williams Creeks entitled "Dahlgren Wastewater Treatment Plant Interim Capacity Enhancement Alternate Discharge Analysis" dated February 15, 2002 to determine the appropriate mixing zones and dilution ratios to be applied to the outfall location site. The "Cormix" model reports results as "Near-field Mixing Zone Conditions and Far-field Mixing Zone Conditions". Near-field conditions are compared against the acute criteria with a 1-hour exposure time, while Far-field conditions are compared against the chronic criteria using a 96-hour exposure time. The model predicts that at the edge of the Near-field mixing zone there would be a 20.5:1 dilutions ratio. It did not predict any Far-field dilutions due to the stagnant ambient conditions and unsteady current circulation.

DEQ reviewed and approved the model on August 23, 2002 for use with the following recommendations: For the purposed of establishing WLAs at the outfall site, the dilution values of 20:1 for acute toxicity and 20:1 for chronic toxicity should be used to develop the WLAs. The most stringent WLAs will then be used to determine any applicable effluent limits. The model and the approval memo can be found in the 2008 permit reissuance permit file.

c) Effluent Limitations Toxic Pollutants, Outfall 001 –

9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9 VAC 25-31-230.D. requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N/TKN:

Staff evaluated the new ambient water quality data for the receiving stream based on saltwater WLAs and concluded that no ammonia effluent limitations are required. Please see Attachment 10 for the limit evaluation.

2) Total Residual Chlorine:

Chlorine is not used for disinfection at this facility or anywhere else in the treatment process; therefore, no TRC effluent limitations are required.

3) Metals/Organics:

No limits are needed. At the time of this permit reissuance, no metals or organic data had been received from the permittee to evaluate and determine if any effluent limitations are necessary.

d) Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

In addition to the "Cormix" model developed by the permittee's engineers, DEQ staff during the 2003 permit reissuance conducted modeling on Upper Machodoc and Williams Creeks using the regional "Tidal Prism Model for Small Tidal Basins" dated August 28, 2002. This model was used to derive $cBOD_5$ and Dissolved Oxygen effluent limitations for the 1.0 MGD outfall location as well as to determine the need for additional Total Kjeldahl Nitrogen (TKN) limits. As can be seen from the model outputs (Attachment 11) water quality standards are protected and no stringent TKN limit is required. However, the model also indicates that the levels of "Chlorophyll a" which is used as an indicator of algae blooms in Williams Creek increased. DEQ staff used the modeling results and "Best Professional Judgment" to establish a TKN effluent month average limitation of 10 mg/L. This TKN effluent limitation was selected since it indicated only a minimum increase in the Chlorophyll a" levels occurs with this TKN effluent limitation.

No changes to dissolved oxygen (D.O.), carbonaceous biochemical oxygen demand-5 day ($cBOD_5$), total suspended solids (TSS), Total Kjeldahl Nitrogen (TKN), and pH limitations are proposed.

It is staff's practice to equate the Total Suspended Solids limits with the $cBOD_5$ limits. TSS limits are established to equal $cBOD_5$ limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

Enterococci and Fecal coliform bacteria limitations are in accordance with the Water Quality Standards 9 VAC25-260-170.

e) Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

VPDES Regulation 9 VAC 25-31-220(D) requires effluent limitations that are protective of both the numerical and narrative water quality standards for state waters, including the Chesapeake Bay.

As discussed in Section 15(a), significant portions of the Chesapeake Bay and its tributaries are listed as impaired with nutrient enrichment cited as one of the primary causes. Virginia has committed to protecting and restoring the Bay and its tributaries.

The State Water Control Board adopted new Water Quality Criteria for the Chesapeake Bay in March 2005. In addition to the Water Quality Standards, there are three new regulations that necessitate nutrient limitations:

- 9 VAC 25-40 - *Regulation for Nutrient Enriched Waters and Dischargers within the Chesapeake Bay Watershed* requires discharges with design flows of $\geq$0.04 mgd to treat for TN and TP to either BNR levels (TN = 8 mg/l; TP = 1.0 mg/l) or SOA levels (TN = 3.0 mg/l and TP = 0.3 mg/l).

- 9 VAC 25-720 – *Water Quality Management Plan Regulation* sets forth TN and TP maximum wasteload allocations for facilities with design flows of $\geq$0.5 mgd limiting the mass loading from these discharges.

- 9 VAC 25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia* was approved by the State Water Control Board on September 6, 2006 and became effective January 1, 2007. This regulation specifies and controls the nitrogen and phosphorus loadings from facilities and specifies facilities that must register under the general permit. Nutrient loadings for those facilities registered under the general permit as well as compliance schedules and other permit requirements, shall be authorized, monitored, limited, and otherwise regulated under the general permit and not this individual permit.

Monitoring for Nitrates + Nitrites, Total Kjeldahl Nitrogen, Total Nitrogen, and Total Phosphorus are included in this permit. The monitoring is needed to protect the Water Quality Standards of the Chesapeake Bay. Monitoring frequencies are set at the frequencies set forth in 9 VAC 25-820.

Annual average effluent limitations, as well as monthly and year to date calculations, for Total Nitrogen and Total Phosphorus are included in this individual permit.

For the 1.0 MGD flow, concentration limits of 4.0 mg/L TN annual average and 0.30 mg/L TP annual average are needed based on 9VAC40-70.A(4). The limits are based in part on the WLA assigned to the facility in 9VAC25-720. The project was substantially complete in 2007. The terms of the WQIF agreement (Grant Agreement No. 440-S-08-04) are such that King George Service Authority was to commence monitoring on January 1, 2007 and the performance limits become effective in the first full calendar year after the CTO. The CTO was issued on 1/16/08 so that the performance limits become effective in January 2009. The facility is governed by the general permit mentioned above, with the following loadings: 9,137 lbs/yr (TN) and 914 lbs/yr (TP), as specified by 9VAC25-720.

f) Effluent Limitations and Monitoring Summary.

The effluent limitations are presented in the following table. Limits were established for Flow, $cBOD_5$, Total Suspended Solids, pH, Dissolved Oxygen, TKN, Fecal Coliform bacteria. Enterococci bacteria, Total Nitrogen (calendar year concentration), Total Phosphorus (calendar year concentration) and Whole Effluent Chronic Toxicity (*Mysidopsis bahia and Cyprinodon variegatus*).

The limit for Total Suspended Solids is based on Best Professional Judgement.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/l), with the flow values (in MGD) and a conversion factor of 3.785.

The mass loading (lb/d) for TKN monthly and weekly averages were calculated by multiplying the concentration values (mg/l), with the flow values (in MGD) and a conversion factor of 8.3438.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

18. Antibacksliding:

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19. Effluent Limitations/Monitoring Requirements:

Design flow is 1.0 MGD.
Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	N/A	N/A	NL	Continuous	TIRE
pH	1	N/A	N/A	6.0 S.U.	9.0 S.U.	1/D	Grab
$cBOD_5$	1,2	25 mg/L 95 kg/day	37 mg/L 140 kg/day	N/A	N/A	5D/W	24HC
Total Suspended Solids (TSS)	3	25 mg/L 95 kg/day	37 mg/L 140 kg/day	N/A	N/A	5D/W	24HC
Total Kjeldahl Nitrogen (TKN)	1,2	10 mg/L 83 lbs/day	15 mg/L 125 lbs/day	N/A	N/A	5D/W	24HC
DO	1,2	N/A	N/A	6.0 mg/L	N/A	1/D	Grab
Fecal Coliform (Geometric Mean)	1	200 n/100 mLs	N/A	N/A	N/A	5D/W[4]	Grab
Enterococci (Geometric Mean)	1	35 n/100 mLs	N/A	N/A	N/A	5D/W[4]	Grab
Nitrate+Nitrite, as N (mg/L)	1,5	NL	N/A	N/A	N/A	1/W	24HC
Total Nitrogen – Monthly (mg/L)[6]	1,5	NL	N/A	N/A	N/A	1/W	Calculated
Total Nitrogen – Year to Date (mg/L)[7]	1,5	NL	N/A	N/A	N/A	1/M	Calculated

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Total Nitrogen – Calendar Year [7]	1.5	4.0 mg/L	N/A	N/A	N/A	1/YR	Calculated
Total Phosphorus (mg/L)	1,5	NL	N/A	N/A	N/A	1/W	24HC
Total Phosphorus – Year to Date (mg/L)[7]	1,5	NL	N/A	N/A	N/A	1/M	Calculated
Total Phosphorus - Calendar Year [7]	1,5	0.30 mg/L	N/A	N/A	N/A	1/YR	Calculated
Total Hardness	N/A	N/A	N/A	NL	NL	1/W	Grab
Chronic 7-Day Static Renewal – *Mysidopsis bahia* (TU_c)[8]	1	N/A	N/A	N/A	25	1/3M	24HC
Chronic 7 Day Static Renewal – *Cyprinodon variegatus* (TU_c)[8]	1	N/A	N/A	N/A	25	1/3M	24HC

The basis for the limitations codes and footnotes are:

1. Water Quality Standards
2. Stream Model- Attachment 11
3. Best Professional Judgement
4. Between 10:00 am and 4:00 pm
5. 9 VAC 25-40 (Nutrient Regulation)
6. Total Nitrogen = Sum of TKN plus Nitrate + Nitrite
7. See Section 20a (Fact Sheet) or Part I.B.4 of the Permit for the Nutrient calculation
8. See Section 20c (Fact Sheet) or Part I. D of the Permit for Toxics Management Program requirements

MGD = Million gallons per day.
N/A = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
1/W = Once every week.
5D/W = Five days a week.
1/M = Once every month.
1/3M = Once a quarter.
1/YR = Once every year.

24HC = A flow proportional composite sample collected manually or automatically, and discretely or continuously, for the entire discharge of the Monitored 24-hour period. Where discrete sampling is employed, the permittee shall collect a minimum of twenty-four (24) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum twenty-four (24) grab samples obtained at hourly or smaller intervals may be collected. Where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by ≥10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

20. Other Permit Requirements:

a) Part I.B. of the permit contains quantification levels and compliance reporting instructions.

9 VAC 25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9 VAC 25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or contribute to a violation. If the laboratory analyzing the parameter's QLs is lower than what is stated in the permit, then those QLs will be used in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

The calculations for the Nitrogen and Phosphorus parameters shall be in accordance with the calculations set forth in 9 VAC 25-820 *General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia*. §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9 VAC 25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, these reporting calculations are intended to reconcile the reporting calculations between the permit programs, since the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

b) Permit Section Part I.C.- Pretreatment Program. Requirements

The VPDES Permit Regulation 9 VAC 25-31-730. through 900., and 40 CFR Part 403 requires POTWs with a design flow of >5 MGD and those receiving pollutants from Significant Industrial Users (SIUs) that pass through or interfere with the operation of the POTW or are otherwise subject to pretreatment standards to

develop a pretreatment program. To determine if there are SIU's discharging to the system, the permittee is required to conduct a Significant Industrial User Survey and report the results to DEQ-NRO by April 1, 2009. If SIUs are identified, the permittee shall within 365 days of the effective date of this permit, submit to the DEQ-NRO, a legally enforceable document which enables the POTW to control, by permit, the SIUs discharging wastewater to the treatment works as detailed in Part 1.C. of the permit.

c) Permit Section Part I.D., details the requirements for Toxics Management Program.

The VPDES Permit Regulation at 9 VAC 25-31-210 requires monitoring and 9 VAC 25-31-220.I, requires limitations in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act. A TMP is imposed for municipal facilities with a design rate >1.0 MGD, with an approved pretreatment program or required to develop a pretreatment program, or those determined by the Board based on effluent variability, compliance history, IWC, and receiving stream characteristics. This permit contains a Whole Effluent Toxicity (WET) limit. As part of the 1998 permit reissuance process, the permittee was required to conduct a Toxics Management Program and had failed several of the effluent toxicity analyses. The next step was the Toxics Reduction Evaluation (TRE) which allowed the permittee time to evaluate the source of the toxicity and either eliminate or reduce the toxicity to acceptable levels. Since the 2003 permit reissuance, the facility's effluent has passed all but one of their effluent toxicity tests. This permit will continue the WET limit established in the 2003 permit reissuance for the 1.0 MGD design flow. Once a WET limit has been established for a facility, it remains permanently as an effluent limitation. See Attachment 12 for WET calculations.

Because, the facility's design flow has been expanded and the facility has been upgraded (CTO issued 1/16/08), the Toxics Management Program requires that Chronic 7-Day Static Renewal Survival testing for *Mysidopsis bahia* and *Cyprinodon variegatus* be performed quarterly for the first two years of the permit then be reduced to yearly for the term of the permit. This additional testing is required to ensure that no additional effluent toxicity has been caused by the increase in flow or upgrade of the facility. The species required for testing have changed because the receiving water has been classified as saltwater instead of freshwater.

21. Other Special Conditions:

a) 95% Capacity Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.B.2. requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.

b) Indirect Dischargers. Required by VPDES Permit Regulation, 9 VAC 25-31-280 B.9 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

c) O&M Manual Requirement. Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790; VPDES Permit Regulation, 9 VAC 25-31-190.E. Within 90 days of the effective date of this permit, the permittee shall submit for approval a statement confirming the accuracy and completeness of the current O&M Manual to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

d Licensed Operator Requirement. The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9 VAC 25-31-200 D, and Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators. This facility requires a Class I operator.

e) Reliability Class. The Sewage Collection and Treatment Regulation at 9 VAC 25-790 requires sewerage works achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. The facility is required to meet a Reliability Class of I.

f) CTC, CTO Requirement. The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to

commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

g) Water Quality Criteria Reopener. The VPDES Permit Regulation at 9 VAC 25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.

h) Sludge Reopener. The VPDES Permit Regulation at 9 VAC 25-31-200.C.4. requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA.

i) Sludge Use and Disposal. The VPDES Permit Regulation at 9 VAC 25-31-100.P., 220.B.2., and 420-720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage.

j) TMDL Reopener: This special condition is to allow the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may to developed and approved for the receiving stream. See Fact Sheet No. 26 for additional information regarding the pertinent TMDLs.

k) Nutrient Reopener. 9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade. 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

l) E3/E4. 9 VAC 25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology-based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

m) PCB Monitoring. This special condition shall require the permittee to monitor and report PCB concentrations in dry weather and wet weather effluent samples. The results from this monitoring shall be used to implement the PCB TMDL that was developed for the Potomac River and approved by EPA in October 2007. This facility was given a WLA in the TMDL.

Permit Section Part II. Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

a) Special Conditions:

1. Deleted the Water Quality Criteria Monitoring and Closure Plan (Outfall 001 – Upper Williams Creek) Special Conditions.
2. Included special conditions for Nutrient Reopener, E3/E4, and PCB Monitoring.

b) Monitoring and Effluent Limitations:

1. Removed the Effluent Limitation pages for the design flows of 0.5 MGD (both old and new outfall locations).
2. Removed the TRC effluent limitations.

3. Added effluent monitoring for Total Nitrogen (year to date), Total Phosphorus, Total Phosphorus (year to date), and Total Hardness.
4. Included the annual average effluent limitation for Total Nitrogen (calendar year).
5. Reduced the annual average effluent limitation for Total Phosphorus (calendar year) from 2.0 mg/L to 0.30 mg/L.
6. Include monthly average (geometric mean) for Enterococci bacteria.
7. Change the Toxics Monitoring Program species from freshwater to saltwater.

24. Variances/Alternate Limits or Conditions:

None

25. Public Notice Information:

First Public Notice Date: December 3, 2009 Second Public Notice Date: December 10, 2008

Public Notice Information is required by 9 VAC 25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 538-3925, jccrowther@deq.virginia.gov. See Attachment 13 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

26. 303 (d) Listed Stream Segments and Total Max. Daily Loads (TMDL):

There are numerous 303(d) listed impairments for the receiving portion of Williams Creek. These impairments include dissolved oxygen, pH, fecal coliform for shellfish, and insufficient acreage of submerged aquatic vegetation (SAV), as noted by an aquatic plants (macrophytes) impairment. Additionally, there is a downstream PCB in fish tissue impairment for the tidal portion of Upper Machodoc Creek. (See Attachment 14; Draft 2008 303(d) Fact Sheets of the Impaired Waters)

Only a TMDL for PCBs in fish tissue has been approved. The report was approved by U.S. EPA on 10/31/2007. Significant contributors of PCBs are included in the TMDL. The facility is categorized as a significant discharger and was included.

The dissolved oxygen and aquatic plants (macrophytes) impairments both have a TMDL due date of 2010. The pH impairment has a TMDL due date of 2016. The fecal coliform for shellfish impairment has a TMDL due date of 2010; however, the TMDL was submitted to EPA for approval in September 2008.

The permit contains a TMDL Reopener that allows the permit to reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

27. Additional Comments:

Previous Board Action(s):

On September 11, 2006, an Administrative Consent Order was executed with King George County Sanitation Authority to address the TKN, phosphorus, and Whole Effluent Toxicity effluent limitation violations at the Dahlgren Wastewater Treatment Plant. These violations have been resolved and the Administrative Consent Order was cancelled on February 25, 2008

Staff Comments: None.

Public Comment: Comments were received by King George County Service Authority (KGCSA) by letter dated December 4, 2008 and staff comments were provided to KGCSA by letter dated December 15, 2008. The following is a summary of KGCSA comments and DEQ responses:

1) the correct reference to the KGCSA - all erroneous references to KGCSA have been corrected in both the VDPES permit and Fact Sheet;

2) requested a better explanation for Quantification Levels (QL) – although DEQ concurs that the current QL language in the permit is confusing, DEQ guidance states that staff is to use this language until revised QL language is provided;

3) KGCSA requested that the Pretreatment Significant User Survey requirement be delayed until the facility's actual influent flows are at 1.0 MGD – DEQ responded by stating that all permit requirements are based on the facility design flows and not actual influent flows. (This request was not granted.);

4) KGCSA requested that the increase in toxicity testing frequency for the first two years of the permit be delayed until the actual influent flows reach 1.0 MGD – DEQ again responded that the permit special conditions are based on design flows and not actual influent flows (This request was not granted.);

5) KGCSA requested the permit effluent limitations for PCBs – DEQ responded by stating that it is our desire that the PCBs' TMDL implementation first be complied with by collecting additional PCB effluent data and through the implementation of non-numeric water quality based effluent limits or best management practices;

6) KGCSA questioned the listing of Total Phosphorus in the Fact Sheet Section 23 (b)- DEQ explained that it was listed twice because it is being required to be reported two different ways; and

7) KGCSA stated that the PCB impairment fact sheet was missing from the fact sheet attachments – this omission was acknowledged and the PCB impairment fact sheet was mailed to KGCSA.

The draft permit and fact sheet was sent to EPA for comments on October 9, 2008; by email dated November 7, 2008, EPA responded with no objections to the issuance of this permit.

No comments were received by the State of Maryland's Department of the Environment.

No other public comments were received.

EPA Checklist: The checklist can be found in Attachment 15

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination
Dahlgren District WWTP - #VA0026514

TO: Jim Olson, NRO

FROM: Paul E. Herman, P.E., WQAP

DATE: August 26, 2002

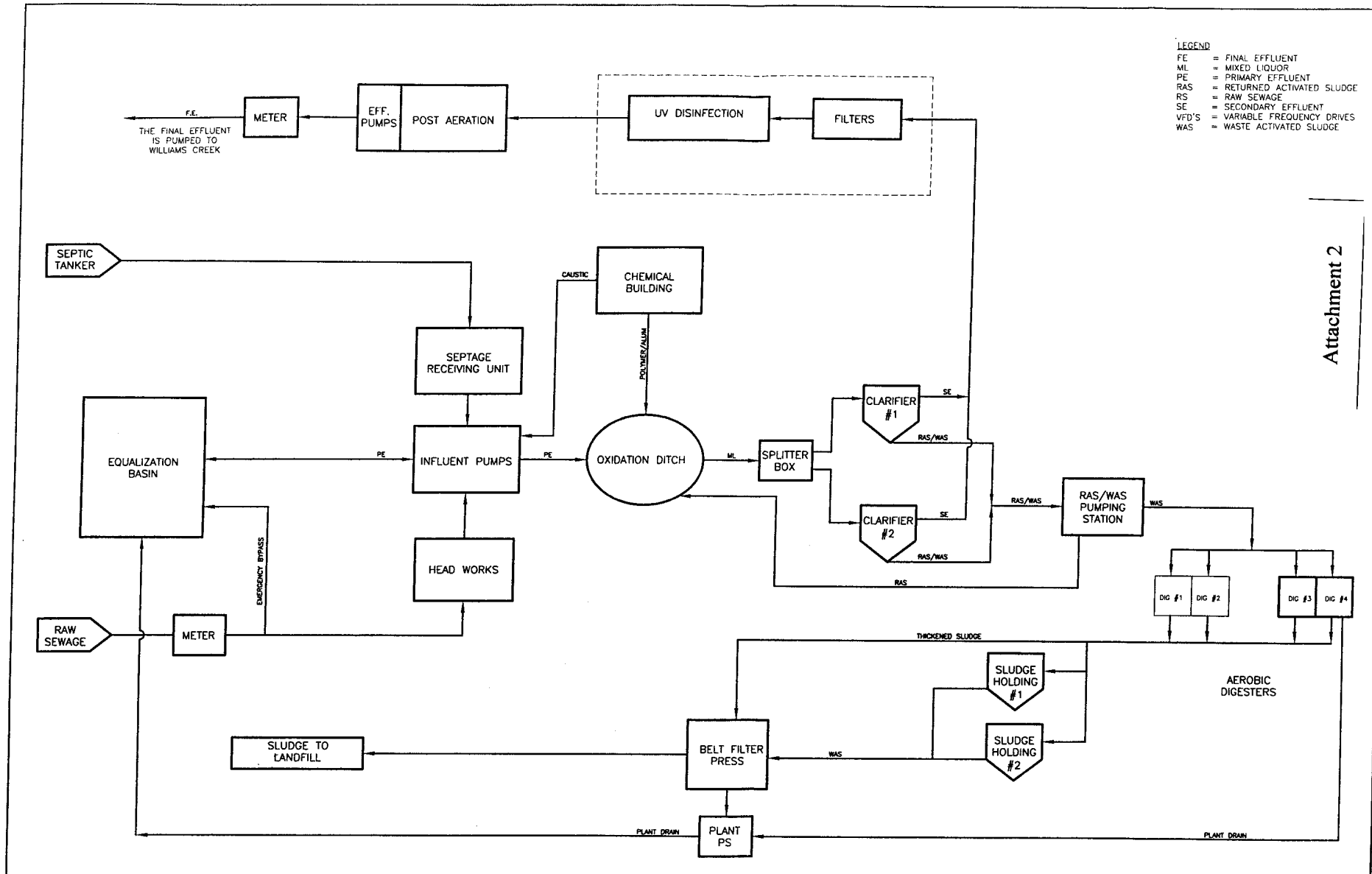
COPIES: File

The Dahlgren District WWTP discharges to the Williams Creek near Dahlgren, VA. Flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit.

The values at the discharge point were determined by inspection of the USGS Dahlgren Quadrangle topographical map that shows the receiving stream to be tidal at the discharge point. The flow frequencies for tidal streams are not determinable. Dilution ratios are recommended if the effect the discharge has on water quality in the Wiliams Creek is to be determined. The drainage area of Williams Creek above the discharge point is 4.5 mi^2.

If you have any questions concerning this analysis, please let me know.

Attachment 1



Attachment 2

THIS DRAWING PREPARED AT THE CORPORATE OFFICE
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DATE	REVISION DESCRIPTION

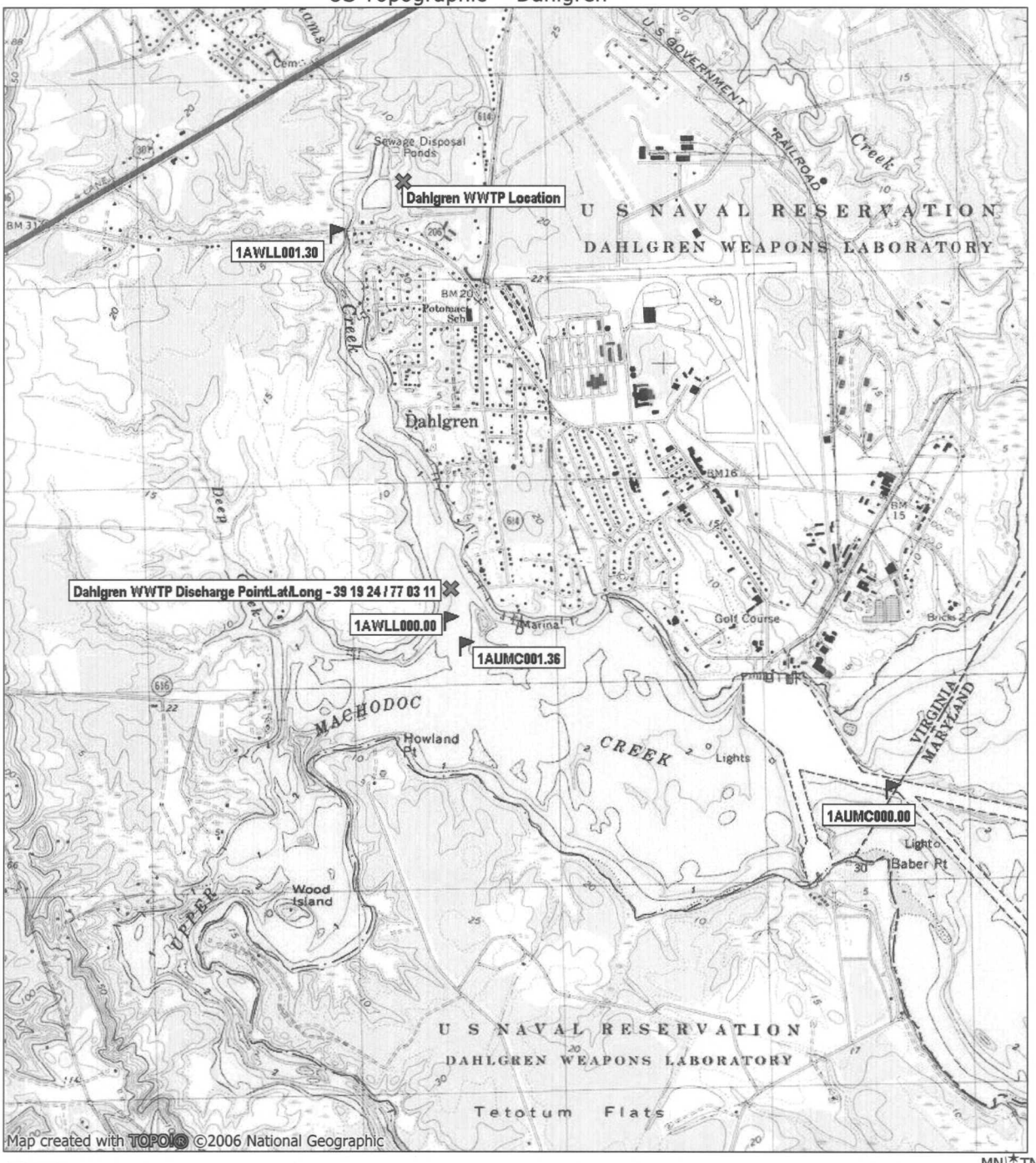
TIMMONS GROUP

DATE: 10/17/07
DRAWN BY: S. SCOTT
DESIGNED BY: I. MUTOTI
CHECKED BY: I. MUTOTI
SCALE: NTS

DAHLGREN WWTP VPDES PERMIT
KING GEORGE SERVICE AUTHORITY
PROCESS FLOW DIAGRAM

JOB NO. 24436
SHEET NO. G

US Topographic - Dahlgren



NATIONAL GEOGRAPHIC

0.0 0.5 1.0 miles

0.0 0.5 1.0 1.5 km

MN TN

10½°

08/04/08

Attachment 3

Williams Creek at Route 206						
Latitude 38 20 21/ Longitude 77 3 34				VAN-A30E		
Collection Date	Field pH	Temp Celsuis		sorted pH		sorted Temperature
2/23/2000	--	8.6		--		29.9
4/26/2000	--	10.4		--		29.58
6/28/2000	7.07	21.62		8.2		**27.8**
8/29/2000	6.77	22.85		8.1		26.2
3/13/2001	5.8	8.8		**7.6**		23.8
5/3/2001	6.73	18.73		7.3		22.85
8/2/2005	7.1	29.58		7.27		22.3
11/14/2005	8.2	14.33		7.2		21.62
12/21/2005	6.56	1.51		7.2		20
2/28/2006	7.27	2.9		7.2		19.5
4/12/2006	8.1	17		7.1		18.73
5/31/2006	6.9	27.8		7.07		17
6/14/2006	7	22.3		7		14.33
7/19/2006	7	29.9		7		11.4
3/12/2007	7.2	11.4		6.9		10.4
5/3/2007	7.2	20		6.8		8.8
7/23/2007	7.3	26.2		6.77		8.6
9/25/2007	6.5	23.8		6.73		7.7
11/29/2007	7.2	7.7		6.56		6.2
1/30/2008	7.6	6.2		6.5		2.9
4/24/2008	6.8	19.5		5.8		1.51

90th percentile pH = 7.6 SU
90th percentile Temperature = 27.8 C

Williams Creek at Route 206	
Collection Date	Salinity
5/3/2007	1.59
9/25/2007	9.9
11/29/2007	9.97
1/30/2008	9.06
4/24/2008	1.88
Average Salinity	6.48

Attachment 4

Hardness Data for the Tidal Estuary					
Station ID	Stream Name	Station Description	Collection Date	Parameter Name	Value
1AWLL000.00	Williams Creek	AT MOUTH OF WILLIAMS CREEK	5/13/1977	TOT HARD CACO3 MG/L	237
1AUMC000.00	Upper Machodoc	IN CHANNEL AT MOUTH AT COUNTY LINE	5/13/1977	TOT HARD CACO3 MG/L	214
1AUMC001.36	Upper Machodoc	NEAR MOUTH OF WILLIAMS CREEK	5/13/1977	TOT HARD CACO3 MG/L	161
				Average hardness	204

To: Joan C. Crowther
From: Katie Conaway

Date: September 8, 2008
Subject: Planning Statement for Dahlgren WWTP; VA0026514

Discharge Type: Municipal
Discharge Flow: 0.5, 1.0 MGD (tier)

Receiving Stream: Williams Creek
Latitude / Longitude: 38° 19' 24' / 77° 03' 11"

Watersheds: VAN-A30E; PL64

1. Is there monitoring data for the receiving stream?

Yes, Station 1aWLL001.30, at the Route 206 crossing of Williams Creek, is located approximately 1.19 rivermiles **upstream** of the facility outfall.

- If yes, please attach latest summary.

Outfall 001 of VA0026514 discharges to Williams Creek at Segment VAN-A30E_WLL01A02. Below is the summary for this segment based off the 2006 Integrated Assessment:

Class II, Section 2, special stds. a.

DEQ ambient and sediment monitoring station 1AWLL001.30, at Route 206.

Historical Note: In 2004, the segment size was reduced to acknowledge the seasonally condemned area of Section G in the shellfish condemnation notice.

Historical Note: For the 2006 assessment, the NEW-14 special standard designation was removed.

Ambient monitoring finds dissolved oxygen and pH impairments, resulting in an impaired classification for the aquatic life use. An observed effect for total phosphorus was noted. While one exceedance in seven sampling events is classified as insufficient information, the 2004 assessment showed that two of 16 samples (12.5%) exceeded the total phosphorus screening value of 0.20 mg/L. Additionally, the National Oceanic and Atmospheric Administration (NOAA) Effects Range-Median concentration sediment screening values of 0.71 parts per million (dry weight) for mercury (Hg) was exceeded in a sediment sample collected in 2001, also noted an observed effect for the aquatic life use. An open water assessment of dissolved oxygen values during the summer season between 2002 and 2004 showed that the Potomac Mesohaline (POTMH) was not supporting. The segment was 0.83 percent above the cumulative frequency distribution (CFD). Finally, because submerged aquatic vegetation subuse of the aquatic life use was not met, the segment is considered impaired for the aquatic life use.

The shellfishing use is categorized as impaired due to a Virginia Department of Health, Division of Shellfish Sanitation, Notice and Description of Shellfish Area Condemnation Number 001A-036, Upper

Machodoc Creek. Note that prior condemnations prior to the 2004 assessment referred to this section as Section D.

As one fecal coliform bacteria exceedance exists in six sampling events, there was insufficient data to determine support for the recreational use. The wildlife use is considered fully supporting. The fish consumption use was not assessed.

2004 TMDL ID for this segment was VAN-A30E-04.

- If no, where is the nearest downstream monitoring station.

The nearest downstream monitoring station is station 1aUMC001.36, located approximately 0.18 rivermiles downstream from the facility outfall, on Upper Machodoc Creek. This station is a fish tissue and sediment station only, however. NRO does not have any ambient monitoring stations located downstream of the facility outfall.

2. Is the receiving stream on the current 303(d) list?

Yes.

- If yes, what is the impairment?

As noted above, there are numerous impairments for the receiving portion of Williams Creek. These impairments include dissolved oxygen, pH, fecal coliform for shellfish, and insufficient acreage of submerged aquatic vegetation (SAV), as noted by an aquatic plants (macrophytes) impairment.

- Has the TMDL been prepared?

The fecal coliform TMDL for shellfish impairment was submitted to EPA in September 2008. The remaining TMDLs for dissolved, oxygen, pH, and insufficient acreage of SAVs have not been completed yet.

- If yes, what is the WLA for the discharge?

Fecal Coliform TMDL for Shellfish Impairment: No WLA was given to this facility under the shellfish TMDL because the shellfish use is administratively removed in areas of point source discharges.

Additionally, VA0026514 is provided with a WLA of 9,137 lbs/yr (Total Nitrogen) and 914 lbs/yr (Total Phosphorus), as specified by 9VAC25-720.

- If no, what is the schedule for the TMDL?

The dissolved oxygen and aquatic plants (macrophytes) impairments both have a TMDL due date of 2010. The pH impairment has a TMDL due date of 2016.

3. If the answer to (2) above is no, is there a downstream 303(d) listed impairment?

Williams Creek flows into Upper Machodoc Creek. The tidal portion of Upper Machodoc Creek is listed with multiple impairments.

- If yes, what is the impairment?

Upper Machodoc Creek is listed with impairments for PCBs in fish tissue, dissolved oxygen, fecal coliform for shellfish, enterococcus for the recreational use, and insufficient acreage of submerged aquatic vegetation (SAV), as noted by an aquatic plants (macrophytes) impairment.

- Has a TMDL been prepared?

PCBs in Fish Tissue – Yes, approved 10/31/2007
Recreation (enterococcus) – No, due 2018
Dissolved Oxygen – No, due 2010
SAV – No, due 2010
Shellfish (fecal coliform) – Yes, submitted to EPA in September 2008

- Will the TMDL include the receiving stream?

PCBs in Fish Tissue – No, but included significant upstream dischargers
Recreation (enterococcus) – No, but will include upstream dischargers
Dissolved Oxygen – Yes
SAV – Yes
Shellfish – Yes

- Is there a WLA for the discharge?

Potomac PCB TMDL: Significant contributors of PCBs are included in the TMDL. VA0026514 is categorized as a significant discharger and was included.

Fecal Coliform TMDL for Shellfish Impairment: No WLA was given to this facility under the shellfish TMDL because the shellfish use is administratively removed in areas of point source discharges.

Additionally, VA0026514 is provided with a WLA of 9,137 lbs/yr (Total Nitrogen) and 914 lbs/yr (Total Phosphorus), as specified by 9VAC25-720.

- What is the schedule for the TMDL?

See above.

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit? Please include the agreed upon text regarding monitoring for PCBs.

Dissolved Oxygen Criteria (9 VAC 25-260-185)

Designated Use	Criteria Concentration/Duration	Temporal Application
Migratory fish spawning and nursery	7-day mean > 6 mg/L (tidal habitats with 0-0.5 ppt salinity)	February 1 – May 31
	Instantaneous minimum > 5 mg/L	
Open-water[1,2]	30-day mean > 5.5 mg/L (tidal habitats with 0-0.5 ppt salinity) 30-day mean > 5 mg/L (tidal habitats with >0.5 ppt salinity)	Year-round
	7-day mean > 4 mg/L	
	Instantaneous minimum > 3.2 mg/L at temperatures < 29°C Instantaneous minimum > 4.3 mg/L at temperatures > 29°C	
Deep-water	30-day mean >3 mg/L	June 1-September 30
	1-day mean > 2.3 mg/L	
	Instantaneous minimum > 1.7 mg/L	
Deep-channel	Instantaneous minimum > 1 mg/L	June 1-September 30

[1]See subsection aa of 9 VAC 25-260-310 for site specific seasonal open-water dissolved oxygen criteria applicable to the tidal Mattaponi and Pamunkey Rivers and their tidal tributaries.

[2]In applying this open-water instantaneous criterion to the Chesapeake Bay and its tidal tributaries where the existing water quality for dissolved oxygen exceeds an instantaneous minimum of 3.2 mg/L, that higher water quality for dissolved oxygen shall be provided antidegradation protection in accordance with section 30 subsection A.2 of the Water Quality Standards.

SALTWATER AND TRANSITION ZONES
WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Dahlgren Wastewater Treatment Plant Permit No.: VA00226514 Version: OWP Guidance Memo 00-2011 (8/24/00)
Receiving Stream: Williams Creek

Stream Information

Mean Hardness (as CaCO3) =	204	mg/l
90th % Temperature (Annual) =	27.8	(° C)
90th % Temperature (Winter) =		(° C)
90th % Maximum pH =	7.6	
10th % Maximum pH =		
Tier Designation (1 or 2) =	1	
Early Life Stages Present Y/N =	Y	
Tidal Zone =	1	(1 = saltwater, 2 = transition zone)
Mean Salinity =	6.48	(g/kg)

Mixing Information

Design Flow (MGD)	1
Acute WLA multiplier	20
Chronic WLA multiplier	20
Human health WLA multiplier	

Effluent Information

Mean Hardness (as CaCO3) =	32	mg/L
90 % Temperature (Annual) =	26	(° C)
90 % Temperature (Winter) =		(° C)
90 % Maximum pH =	8.3	SU
10 % Maximum pH =		SU
Discharge Flow =	1	MGD

Parameter	Background	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			**Most Limiting Allocations**		
(ug/l unless noted)	Conc.	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	**Acute**	**Chronic**	**HH**
Acenapthene	0	--	--	2.7E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Acrolein		--	--	7.8E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Acrylonitrile[C]		--	--	6.6E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Aldrin [C]	0	1.3E+00	--	1.4E-03	2.6E+01	--	0.0E+00	--	--	--	--	--	--	**2.6E+01**	--	**0.0E+00**
Ammonia-N (mg/l) - Annual	0	7.1E+00	1.1E+00	--	1.4E+02	2.1E+01	--	--	--	--	--	--	--	**1.4E+02**	**2.1E+01**	--
Ammonia-N (mg/l) - Winter	0	5.5E+01	8.2E+00	--	1.1E+03	1.6E+02	--	--	--	--	--	--	--	**1.1E+03**	**1.6E+02**	--
Anthracene	0	--	--	1.1E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Antimony	0	--	--	4.3E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Arsenic	0	6.9E+01	3.6E+01	--	1.4E+03	7.2E+02	--	--	--	--	--	--	--	**1.4E+03**	**7.2E+02**	--
Benzene [C]	0	--	--	7.1E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Benzidine[C]		--	--	5.4E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Benzo (a) anthracene [C]	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Benzo (b) fluoranthene [C]	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Benzo (k) fluoranthene [C]	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Benzo (a) pyrene [C]	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Bis2-Chloroethyl Ether		--	--	1.4E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Bis2-Chloroisopropyl Ether		--	--	1.7E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Bromoform [C]	0	--	--	3.6E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Butylbenzylphthalate	0	--	--	5.2E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Cadmium	0	4.0E+01	8.8E+00	--	8.0E+02	1.8E+02	--	--	--	--	--	--	--	**8.0E+02**	**1.8E+02**	--
Carbon Tetrachloride [C]	0	--	--	4.4E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Chlordane [C]	0	9.0E-02	4.0E-03	2.2E-02	1.8E+00	8.0E-02	0.0E+00	--	--	--	--	--	--	**1.8E+00**	**8.0E-02**	**0.0E+00**
TRC	0			--			--	--	--	--	--	--	--	--	--	--
Chlorine Prod. Oxidant	0	1.3E+01	7.5E+00	--	2.6E+02	1.5E+02	--	--	--	--	--	--	--	**2.6E+02**	**1.5E+02**	--

Attachment 7

Parameter	Background	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			**Most Limiting Allocations**		
(ug/l unless noted)	Conc.	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	**Acute**	**Chronic**	**HH**
Chlorobenzene		--	--	2.1E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Chlorodibromomethane[C]	0	--	--	3.4E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Chloroform [C]	0	--	--	2.9E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
2-Chloronaphthalene	0	--	--	4.3E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
2-Chlorophenol	0	--	--	4.0E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Chlorpyrifos	0	1.1E-02	5.6E-03	--	2.2E-01	1.1E-01	--	--	--	--	--	--	--	**2.2E-01**	**1.1E-01**	**--**
Chromium III	0			--			--	--	--	--	--	--	--	--	--	**--**
Chromium VI	0	1.1E+03	5.0E+01	--	2.2E+04	1.0E+03	--	--	--	--	--	--	--	**2.2E+04**	**1.0E+03**	**--**
Chrysene [C]	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Copper	0	9.3E+00	6.0E+00	--	1.9E+02	1.2E+02	--	--	--	--	--	--	--	**1.9E+02**	**1.2E+02**	**--**
Cyanide	0	1.0E+00	1.0E+00	2.2E+05	2.0E+01	2.0E+01	0.0E+00	--	--	--	--	--	--	**2.0E+01**	**2.0E+01**	**0.0E+00**
DDD [C]	0	--	--	8.4E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
DDE [C]	0	--	--	5.9E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
DDT [C]	0	1.3E-01	1.0E-03	5.9E-03	2.6E+00	2.0E-02	0.0E+00	--	--	--	--	--	--	**2.6E+00**	**2.0E-02**	**0.0E+00**
Demeton	0	--	1.0E-01	--	--	2.0E+00	--	--	--	--	--	--	--	--	**2.0E+00**	**--**
Dibenz(a,h)anthracene [C]	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Dibutyl phthalate	0	--	--	1.2E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Dichloromethane (Methylene Chloride)[C]	0	--	--	1.6E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
1,2-Dichlorobenzene	0	--	--	1.7E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
1,3-Dichlorobenzene	0	--	--	2.6E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
1,4-Dichlorobenzene	0	--	--	2.6E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
3,3-Dichlorobenzidine[C]	0	--	--	7.7E-01	--	--	0.0E+00	--	--	--	--	--	--			
Dichlorobromomethane [C]	0	--	--	4.6E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
1,2-Dichloroethane [C]	0	--	--	9.9E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
1,1-Dichloroethylene	0	--	--	1.7E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
1,2-trans-dichloroethylene	0	--	--	1.4E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
2,4-Dichlorophenol	0	--	--	7.9E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
1,2-Dichloropropane[C]	0	--	--	3.9E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
1,3-Dichloropropene	0	--	--	1.7E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Dieldrin [C]	0	7.1E-01	1.9E-03	1.4E-03	1.4E+01	3.8E-02	0.0E+00	--	--	--	--	--	--	**1.4E+01**	**3.8E-02**	**0.0E+00**
Diethyl Phthalate	0	--	--	1.2E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Di-2-Ethylhexyl Phthalate [C]	0	--	--	5.9E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
2,4-Dimethylphenol	0	--	--	2.3E+03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Dimethyl Phthalate	0	--	--	2.9E+06	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Di-n-Butyl Phthalate	0	--	--	1.2E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
2,4 Dinitrophenol	0	--	--	1.4E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
2-Methyl-4,6-Dinitrophenol	0	--	--	7.65E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
2,4-Dinitrotoluene [C]	0	--	--	9.1E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Dioxin (2,3,7,8-tetrachlorodibenzo-p-dioxin) (ppq)	0	--	--	1.2E-06	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
1,2-Diphenylhydrazine[C]	0	--	--	5.4E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Alpha-Endosulfan	0	3.4E-02	8.7E-03	2.4E+02	6.8E-01	1.7E-01	0.0E+00	--	--	--	--	--	--	**6.8E-01**	**1.7E-01**	**0.0E+00**

Parameter	Background	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			**Most Limiting Allocations**		
(ug/l unless noted)	Conc.	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	**Acute**	**Chronic**	**HH**
Beta-Endosulfan	0	3.4E-02	8.7E-03	2.4E+02	6.8E-01	1.7E-01	0.0E+00	--	--	--	--	--	--	**6.8E-01**	**1.7E-01**	**0.0E+00**
Endosulfan Sulfate	0	--	--	2.4E+02	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Endrin	0	3.7E-02	2.3E-03	8.1E-01	7.4E-01	4.6E-02	0.0E+00	--	--	--	--	--	--	**7.4E-01**	**4.6E-02**	**0.0E+00**
Endrin Aldehyde	0	--	--	8.1E-01	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Ethylbenzene	0	--	--	2.9E+04	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Fluoranthene	0	--	--	3.7E+02	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Fluorene	0	--	--	1.4E+04	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Guthion	0	--	1.0E-02	--	--	2.0E-01	--	--	--	--	--	--	--	**--**	**2.0E-01**	**--**
Heptachlor [C]	0	5.3E-02	3.6E-03	2.1E-03	1.1E+00	7.2E-02	0.0E+00	--	--	--	--	--	--	**1.1E+00**	**7.2E-02**	**0.0E+00**
Heptachlor Epoxide [C]	0	5.3E-02	3.6E-03	1.1E-03	1.1E+00	7.2E-02	0.0E+00	--	--	--	--	--	--	**1.1E+00**	**7.2E-02**	**0.0E+00**
Hexachlorobenzene [C]	0	--	--	7.7E-03	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Hexachlorobutadiene [C]	0	--	--	5.0E+02	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Hexachlorocyclohexane Alpha-BHC [C]	0	--	--	1.3E-01	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Hexachlorocyclohexane Beta-BHC [C]	0	--	--	4.6E-01	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Hexachlorocyclohexane Gamma-BHC [C] (Lindane)	0	1.6E-01	--	6.3E-01	3.2E+00	--	0.0E+00	--	--	--	--	--	--	**3.2E+00**	**--**	**0.0E+00**
Hexachlorocyclopentadiene	0	--	--	1.7E+04	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Hexachloroethane [C]	0	--	--	8.9E+01	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Hydrogen Sulfide	0	--	2.0E+00		--	4.0E+01	--	--	--	--	--	--	--	**--**	**4.0E+01**	**--**
Indeno (1,2,3-cd) pyrene C	0	--	--	4.9E-01	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Isophorone [C]	0	--	--	2.6E+04	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Kepone	0	--	0.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	**--**	**0.0E+00**	**--**
Lead	0	2.4E+02	9.3E+00	--	4.8E+03	1.9E+02	--	--	--	--	--	--	--	**4.8E+03**	**1.9E+02**	**--**
Malathion	0	--	1.0E-01	--	--	2.0E+00	--	--	--	--	--	--	--	**--**	**2.0E+00**	**--**
Mercury	0	1.8E+00	9.4E-01	5.1E-02	3.6E+01	1.9E+01	0.0E+00	--	--	--	--	--	--	**3.6E+01**	**1.9E+01**	**0.0E+00**
Methyl Bromide	0	--	--	4.0E+03	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Methoxychlor	0	--	3.0E-02	--	--	6.0E-01	--	--	--	--	--	--	--	**--**	**6.0E-01**	**--**
Mirex	0	--	0.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	**--**	**0.0E+00**	**--**
Monochlorobenzene	0	--	--	2.1E+04	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Nickel	0	7.4E+01	8.2E+00	4.6E+03	1.5E+03	1.6E+02	0.0E+00	--	--	--	--	--	--	**1.5E+03**	**1.6E+02**	**0.0E+00**
Nitrobenzene	0	--	--	1.9E+03	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
N-Nitrosodimethylamine [C]	0	--	--	8.1E+01	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
N-Nitrosodiphenylamine [C]	0	--	--	1.6E+02	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
N-Nitrosodi-n-propylamine [C]	0	--	--	1.4E+01	--	--	0.0E+00	--	--	--	--	--	--	**--**	**--**	**0.0E+00**
Parathion	0			--			--	--	--	--	--	--	--	**--**	**--**	**--**
PCB-1016	0	--	3.0E-02	--	--	6.0E-01	--	--	--	--	--	--	--	**--**	**6.0E-01**	**--**
PCB-1221	0	--	3.0E-02	--	--	6.0E-01	--	--	--	--	--	--	--	**--**	**6.0E-01**	**--**
PCB-1232	0	--	3.0E-02	--	--	6.0E-01	--	--	--	--	--	--	--	**--**	**6.0E-01**	**--**
PCB-1242	0	--	3.0E-02	--	--	6.0E-01	--	--	--	--	--	--	--	**--**	**6.0E-01**	**--**
PCB-1248	0	--	3.0E-02	--	--	6.0E-01	--	--	--	--	--	--	--	**--**	**6.0E-01**	**--**
PCB-1254	0	--	3.0E-02	--	--	6.0E-01	--	--	--	--	--	--	--	**--**	**6.0E-01**	**--**

Parameter	Background	Water Quality Criteria			Wasteload Allocations			Antidegradation Baseline			Antidegradation Allocations			**Most Limiting Allocations**		
(ug/l unless noted)	Conc.	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	Acute	Chronic	HH	**Acute**	**Chronic**	**HH**
PCB-1260	0	--	3.0E-02	--	--	6.0E-01	--	--	--	--	--	--	--	--	**6.0E-01**	--
PCB Total[C]	0	--	--	1.7E-03	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Pentachlorophenol [C]	0	1.3E+01	7.9E+00	8.2E+01	2.6E+02	1.6E+02	0.0E+00	--	--	--	--	--	--	**2.6E+02**	**1.6E+02**	**0.0E+00**
Phenol	0	--	--	4.6E+06	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Phosphorus (Elemental)	0	--	0.1	--	--	2.0E+00	--	--	--	--	--	--	--	--	**2.0E+00**	--
Pyrene	0	--	--	1.1E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Radionuclides (pCi/l except Beta/Photon)	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gross Alpha Activity	0	--	--	1.5E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Beta and Photon Activity (mrem/yr)	0	--	--	4.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Strontium-90	0	--	--	8.0E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Tritium	0	--	--	2.0E+04	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Selenium	0	3.0E+02	7.1E+01	1.1E+04	6.0E+03	1.4E+03	0.0E+00	--	--	--	--	--	--	**6.0E+03**	**1.4E+03**	**0.0E+00**
Silver	0	2.0E+00	--	--	4.0E+01	--	--	--	--	--	--	--	--	**4.0E+01**	--	--
1,1,2,2-Tetrachloroethane[C]	0	--	--	1.1E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Tetrachloroethylene[C]	0	--	--	8.9E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Thallium	0	--	--	6.3E+00	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Toluene	0	--	--	2.0E+05	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Toxaphene [C]	0	2.1E-01	2.0E-04	7.5E-03	4.2E+00	4.0E-03	0.0E+00	--	--	--	--	--	--	**4.2E+00**	**4.0E-03**	**0.0E+00**
Tributyltin	0	3.8E-01	1.0E-03	--	7.6E+00	2.0E-02	--	--	--	--	--	--	--	**7.6E+00**	**2.0E-02**	--
1,2,4-Trichlorobenzene	0	--	--	9.4E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
1,1,2-Trichloroethane[C]		--	--	4.2E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Trichloroethylene [C]	0	--	--	8.1E+02	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
2,4,6-Trichlorophenol [C]	0	--	--	6.5E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Vinyl Chloride[C]	0	--	--	6.1E+01	--	--	0.0E+00	--	--	--	--	--	--	--	--	**0.0E+00**
Zinc	0	9.0E+01	8.1E+01	6.9E+04	1.8E+03	1.6E+03	0.0E+00	--	--	--	--	--	--	**1.8E+03**	**1.6E+03**	**0.0E+00**

Notes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
2. Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
3. Metals measured as Dissolved, unless specified otherwise
4. "C" indicates a carcinogenic parameter
5. For transition zone waters, spreadsheet prints the lesser of the freshwater and saltwater water quality criteria.
6. Regular WLA = (WQC x WLA multiplier) - (WLA multiplier - 1)(background conc.)
7. Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
   = (0.1(WQC - background conc.) + background conc.) for human health
8. Antideg. WLA = (Antideg. Baseline)(WLA multiplier) - (WLA multiplier - 1)(background conc.)

Metal	Site Specific Target Value (SSTV)
Antimony	0.0E+00
Arsenic III	4.3E+02
Cadmium	1.1E+02
Chromium III	#VALUE!
Chromium VI	6.0E+02
Copper	7.2E+01
Lead	1.1E+02
Mercury	0.0E+00
Nickel	0.0E+00
Selenium	0.0E+00
Silver	1.6E+01
Zinc	0.0E+00

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Stream/Discharge Mix Values

	Acute	Chronic
Hardness	195.40	195.40
Hardness used	195.40	195.40
90th % pH	7.62	7.62
10th % pH	0.00	0.00
90th % Temp (Annual)	27.71	27.71
90th % Temp (Winter)	0.00	0.00
Salinity	6.16	6.16

Ammonia Criteria Determinations

Freshwater Ammonia Criteria - Annual

Duration	NH3-N
Acute	16.55
Chronic - ELS present	1.67
Chronic - ELS absent	1.67

Saltwater Ammon. Criteria - Annual

Duration	NH3-N
Acute	7.09
Chronic	1.06

Freshwater Ammonia Criteria - Winter

Duration	NH3-N
Acute	16.55
Chronic - ELS present	3.91
Chronic - ELS absent	6.34

Saltwater Ammon. Criteria - Winter

Duration	NH3-N
Acute	54.71
Chronic	8.22

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

Jan-06	pH	Temp C	sorted pH	sorted temperature
1	7.3	11.0	8.97	29.0
2	7.4	10.0	8.6	29.0
3	7.2	11.0	8.6	29.0
4	7.2	11.0	8.6	29.0
5	7.1	11.0	8.6	29.0
6	7.2	11.0	8.6	28.0
7	7.2	11.0	8.5	28.0
8	1.0	11.0	8.5	28.0
9	7.4	11.0	8.5	28.0
10	7.5	11.0	8.5	28.0
11	7.4	11.0	8.5	28.0
12	7.5	11.0	8.5	28.0
13	7.4	11.0	8.4	28.0
14	7.5	11.0	8.4	28.0
15	7.3	11.0	8.4	28.0
16	7.4	9.0	8.4	28.0
17	7.5	10.0	8.4	27.0
18	7.3	11.0	8.4	27.0
19	7.5	11.0	8.4	27.0
20	7.4	10.0	8.4	27.0
21	7.4	11.0	8.4	27.0
22	7.4	10.0	8.4	27.0
23	7.3	11.0	8.4	27.0
24	7.4	10.0	8.4	27.0
25	7.5	11.0	8.4	27.0
26	7.0	10.0	8.4	27.0
27	7.5	9.0	8.4	27.0
28	7.5	10.0	8.4	27.0
29	7.7	14.0	8.4	27.0
30	7.3	11.0	8.4	27.0
31	7.5	11.0	8.4	27.0
Feb-06			8.4	27.0
1	6.9	11.0	8.4	27.0
2	7.2	11.0	8.4	27.0
3	7.1	12.0	8.4	27.0
4	7.7	13.0	8.3	27.0
5	7.5	12.0	8.3	27.0
6	7.6	11.0	8.3	27.0
7	7.6	10.0	8.3	27.0
8	7.7	10.0	8.3	27.0
9	7.3	10.0	8.3	26.0
10	7.7	9.0	8.3	26.0
11	7.4	10.0	8.3	26.0
12	7.3	9.0	8.3	26.0
13	8.0	8.0	8.3	26.0
14	7.7	9.0	8.3	26.0
15	7.7	9.0	8.3	26.0
16	7.7	10.0	8.3	26.0
17	7.6	11.0	8.3	26.0
18	7.6	11.0	8.3	26.0
19	7.7	9.0	8.3	26.0
20	7.0	9.0	8.3	26.0
21	7.7	11.7	8.3	26.0

Attachment 8

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

22	7.8	10.0	8.3		26.0	
23	7.5	10.0	8.3		26.0	
24	7.5	9.0	8.3		26.0	
25	7.5	9.0	8.3		26.0	
26	7.7	9.0	8.3		26.0	
27	7.7	9.0	8.3		26.0	
28	7.7	9.0	8.3		26.0	
Mar-06			8.3		26.0	
1	7.6	8.0	8.3		26.0	
2	7.8	9.0	8.3		26.0	
3	7.9	9.0	8.3		26.0	
4	7.4	11.0	8.3		26.0	
5	7.7	10.0	8.3		26.0	
6	7.9	10.0	8.3		26.0	
7	7.8	9.0	8.3		26.0	
8	7.9	9.0	8.3		26.0	
9	7.8	10.0	8.3		26.0	
10	7.8	12.0	8.3		26.0	
11	7.7	13.0	8.3		26.0	
12	7.8	14.0	8.3		26.0	
13	7.8	14.0	8.3		26.0	
14	7.6	15.0	8.3		26.0	
15	7.9	14.0	8.3		26.0	
16	8.1	13.0	8.3		26.0	
17	7.7	13.0	8.3		26.0	
18	7.8	13.0	8.3		26.0	
19	7.9	13.0	8.3		26.0	
20	7.8	11.0	8.3		26.0	
21	7.8	11.0	8.3		26.0	
22	7.9	10.0	8.3		26.0	
23	7.6	11.0	8.3		26.0	
24	7.8	11.0	8.3		26.0	
25	7.8	11.0	8.3		26.0	
26	7.9	10.0	8.3		26.0	
27	7.5	12.0	8.3		26.0	
28	7.9	12.0	8.3		26.0	
29	7.9	12.0	**8.3**	**90th percentile**	**26.0**	**90th percentile**
30	7.9	13.0	8.3		26.0	
31	7.9	13.0	8.3		26.0	
Apr-06			8.3		26.0	
1	7.8	15.0	8.3		26.0	
2	8.1	16.0	8.3		26.0	
3	7.9	16.0	8.3		26.0	
4	7.9	16.0	8.2		26.0	
5	7.9	15.0	8.2		26.0	
6	7.8	15.0	8.2		26.0	
7	7.8	15.0	8.2		26.0	
8	7.9	16.0	8.2		26.0	
9	7.9	15.0	8.2		26.0	
10	7.9	14.0	8.2		26.0	
11	8.0	15.0	8.2		26.0	
12	8.0	14.8	8.2		25.0	
13	7.9	16.0	8.2		25.0	
14	7.7	16.0	8.2		25.0	

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

15	7.7	18.0	8.2	25.0
16	8.3	18.0	8.2	25.0
17	7.9	17.0	8.2	25.0
18	7.9	16.0	8.2	25.0
19	7.9	16.0	8.2	25.0
20	7.9	17.0	8.2	25.0
21	8.0	17.0	8.2	25.0
22	7.9	16.0	8.2	25.0
23	8.0	17.0	8.2	25.0
24	8.1	17.0	8.2	25.0
25	7.9	18.0	8.2	25.0
26	7.9	18.0	8.2	25.0
27	7.8	17.0	8.2	25.0
28	7.7	17.0	8.2	25.0
29	7.6	16.0	8.2	25.0
30	7.8	17.0	8.2	25.0
May-06			8.2	25.0
1	8.3	16.0	8.2	25.0
2	7.8	15.0	8.2	25.0
3	7.5	16.0	8.2	25.0
4	7.6	17.0	8.2	25.0
5	8.0	18.0	8.2	25.0
6	7.7	18.0	8.2	25.0
7	7.5	19.0	8.2	25.0
8	7.6	17.0	8.2	25.0
9	8.0	17.0	8.2	25.0
10	8.0	17.0	8.2	25.0
11	7.8	17.0	8.2	25.0
12	8.0	18.0	8.2	25.0
13	8.0	19.0	8.2	25.0
14	8.0	19.0	8.2	25.0
15	7.7	17.0	8.2	25.0
16	8.0	19.0	8.2	25.0
17	8.0	19.0	8.2	25.0
18	8.0	19.0	8.2	25.0
19	8.0	19.0	8.2	25.0
20	7.9	19.0	8.2	25.0
21	8.2	19.0	8.2	25.0
22	8.1	19.0	8.2	25.0
23	7.8	19.0	8.2	25.0
24	7.7	18.0	8.2	25.0
25	8.0	19.0	8.2	25.0
26	7.9	19.0	8.2	25.0
27	8.0	20.0	8.2	25.0
28	8.1	21.0	8.2	25.0
29	8.0	22.0	8.2	25.0
30	8.1	22.0	8.2	25.0
31	8.1	23.0	8.2	24.0
Jun-06			8.2	24.0
1	8.1	24.0	8.2	24.0
2	7.5	25.0	8.2	24.0
3	7.6	24.0	8.2	24.0
4	8.3	21.0	8.2	24.0
5	8.1	22.0	8.2	24.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

6	8.1	22.0	8.2	24.0
7	8.1	22.0	8.2	24.0
8	8.0	22.0	8.2	24.0
9	7.8	21.0	8.2	24.0
10	7.7	22.0	8.2	24.0
11	8.1	20.0	8.2	24.0
12	7.7	21.0	8.2	24.0
13	8.1	20.0	8.2	24.0
14	8.2	21.0	8.2	24.0
15	7.8	19.0	8.2	24.0
16	8.0	21.0	8.2	24.0
17	8.2	22.0	8.2	24.0
18	7.8	22.0	8.2	24.0
19	7.8	22.0	8.2	24.0
20	8.1	24.0	8.2	24.0
21	8.2	24.0	8.2	24.0
22	8.2	24.0	8.2	24.0
23	7.7	25.0	8.2	24.0
24	8.2	25.0	8.2	24.0
25 *	8.3	26.0	8.1	24.0
26 *	8.3	25.0	8.1	24.0
27	8.0	25.0	8.1	24.0
28	7.8	25.0	8.1	24.0
29	7.3	25.0	8.1	24.0
30	7.9	25.0	8.1	24.0
Jul-06			8.1	24.0
1	8.0	24.0	8.1	24.0
2	8.3	23.0	8.1	24.0
3	7.6	26.0	8.1	24.0
4	7.8	26.0	8.1	24.0
5	7.9	26.0	8.1	24.0
6	7.9	26.0	8.1	24.0
7	7.3	25.0	8.1	24.0
8	7.4	24.0	8.1	24.0
9	7.5	24.0	8.1	24.0
10	8.0	24.0	8.1	24.0
11	7.9	25.0	8.1	24.0
12	7.6	26.0	8.1	24.0
13	7.9	26.0	8.1	24.0
14	7.9	26.0	8.1	24.0
15	7.7	27.0	8.1	24.0
16	8.0	27.0	8.1	24.0
17	8.0	25.0	8.1	24.0
18	8.1	27.0	8.1	24.0
19	8.1	27.0	8.1	24.0
20	7.6	28.0	8.1	24.0
21	7.6	28.0	8.1	24.0
22	7.6	27.0	8.1	24.0
23	7.6	27.0	8.1	24.0
24	7.6	25.0	8.1	24.0
25	8.1	26.0	8.1	24.0
26	8.0	26.0	8.1	23.0
27	8.0	27.0	8.1	23.0
28	8.0	27.0	8.1	23.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

29	8.0	28.0	8.1	23.0
30	8.1	28.0	8.1	23.0
31	8.1	28.0	8.1	23.0
Aug-06			8.1	23.0
1	8.3	27.0	8.1	23.0
2	7.8	27.0	8.1	23.0
3	7.7	29.0	8.1	23.0
4	8.2	29.0	8.1	23.0
5	8.3	29.0	8.1	23.0
6	8.2	28.0	8.1	23.0
7	8.2	27.0	8.1	23.0
8	8.0	28.0	8.1	23.0
9	7.9	28.0	8.1	23.0
10	8.0	27.0	8.1	23.0
11	8.1	26.0	8.1	23.0
12	7.8	26.0	8.1	23.0
13	8.0	25.0	8.1	23.0
14	8.2	25.0	8.1	23.0
15	7.9	24.0	8.1	23.0
16	7.9	24.0	8.1	23.0
17	8.1	24.0	8.1	23.0
18	8.0	24.0	8.1	23.0
19	8.0	24.0	8.1	23.0
20	8.4	27.0	8.1	23.0
21	7.9	26.0	8.1	23.0
22	8.2	26.0	8.1	23.0
23	8.1	26.0	8.1	23.0
24	7.9	24.0	8.1	23.0
25	8.0	26.0	8.1	23.0
26	7.7	26.0	8.1	23.0
27	8.0	25.0	8.1	23.0
28	8.3	25.0	8.1	23.0
29	7.9	27.0	8.1	23.0
30	8.2	27.0	8.1	23.0
31	7.8	26.0	8.1	23.0
Sep-06			8.1	23.0
1	8.2	24.0	8.1	23.0
2	7.5	23.0	8.1	23.0
3	7.6	23.0	8.1	23.0
4	7.8	24.0	8.1	22.0
5	7.5	23.0	8.1	22.0
6	7.6	23.0	8.1	22.0
7	7.0	23.0	8.1	22.0
8	7.0	23.0	8.1	22.0
9	7.7	24.0	8.1	22.0
10	7.8	24.0	8.1	22.0
11	7.3	24.0	8.1	22.0
12	7.5	23.0	8.1	22.0
13	7.4	23.0	8.1	22.0
14	7.8	22.0	8.1	22.0
15	7.8	23.0	8.1	22.0
16	7.4	23.0	8.1	22.0
17	7.2	23.0	8.1	22.0
18	7.1	23.0	8.1	22.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

19	7.3	24.0	8.1	22.0
20	7.3	23.0	8.1	22.0
21	8.1	22.0	8.1	22.0
22	8.0	21.0	8.1	22.0
23	7.9	21.0	8.1	22.0
24	7.9	21.0	8.1	22.0
25	8.0	22.0	8.1	22.0
26	7.7	22.0	8.1	22.0
27	8.0	22.0	8.0	22.0
28	7.9	22.0	8.0	22.0
29	8.0	22.0	8.0	22.0
30	7.6	21.0	8.0	22.0
Oct-06			8.0	22.0
1	7.6	21.0	8.0	22.0
2	8.0	21.0	8.0	22.0
3	7.6	21.0	8.0	22.0
4	8.0	22.0	8.0	22.0
5	8.1	22.0	8.0	22.0
6	7.7	21.0	8.0	22.0
7	7.8	19.0	8.0	22.0
8	7.7	19.0	8.0	21.0
9	7.4	19.0	8.0	21.0
10	7.9	20.0	8.0	21.0
11	7.8	20.0	8.0	21.0
12	8.0	21.0	8.0	21.0
13	7.6	20.0	8.0	21.0
14	7.4	19.0	8.0	21.0
15	7.4	18.0	8.0	21.0
16	7.9	17.0	8.0	21.0
17	7.5	18.0	8.0	21.0
18	7.2	19.0	8.0	21.0
19	7.7	19.0	8.0	21.0
20	7.7	20.0	8.0	21.0
21	7.7	20.0	8.0	21.0
22	7.7	20.0	8.0	21.0
23	7.4	18.0	8.0	21.0
24	7.4	16.0	8.0	21.0
25	7.5	16.0	8.0	21.0
26	7.9	15.0	8.0	21.0
27	7.9	16.0	8.0	21.0
28	7.7	16.0	8.0	21.0
29	7.7	17.0	8.0	21.0
30	7.4	16.0	8.0	21.0
31	7.9	16.0	8.0	21.0
Nov-06			8.0	21.0
1	7.9	16.0	8.0	21.0
2	7.9	17.0	8.0	21.0
3	7.2	15.0	8.0	21.0
4	7.0	13.0	8.0	21.0
5	7.2	13.0	8.0	21.0
6	7.3	13.0	8.0	21.0
7	7.6	13.0	8.0	20.0
8	7.5	14.0	8.0	20.0
9	7.8	16.0	8.0	20.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

10	7.5	16.0	8.0	20.0
11	7.5	17.0	8.0	20.0
12	7.2	17.0	8.0	20.0
13	7.3	15.0	8.0	20.0
14	7.4	16.0	8.0	20.0
15	7.5	16.0	8.0	20.0
16	7.5	16.0	8.0	20.0
17	6.8	17.0	8.0	20.0
18	6.9	16.0	8.0	20.0
19	7.0	15.0	8.0	20.0
20	7.6	14.0	8.0	20.0
21	7.5	14.0	8.0	20.0
22	7.6	14.0	8.0	20.0
23	7.1	13.0	8.0	20.0
24	7.4	13.0	8.0	20.0
25	7.6	13.0	8.0	20.0
26	7.5	13.0	8.0	20.0
27	7.1	14.0	8.0	20.0
28	7.6	13.0	8.0	20.0
29	7.7	14.0	8.0	20.0
30	7.6	15.0	8.0	20.0
Dec-06			8.0	20.0
1	7.7	16.0	8.0	20.0
2	7.9	16.0	8.0	20.0
3	7.9	14.0	8.0	20.0
4	7.8	13.0	8.0	19.0
5	7.9	12.0	8.0	19.0
6	7.6	12.0	8.0	19.0
7	7.4	11.0	8.0	19.0
8	7.6	11.0	8.0	19.0
9	7.4	10.0	8.0	19.0
10	7.7	9.0	8.0	19.0
11	7.7	10.0	8.0	19.0
12	7.7	10.0	8.0	19.0
13	7.7	11.0	8.0	19.0
14	7.7	12.0	8.0	19.0
15	7.7	12.0	8.0	19.0
16	7.6	12.0	8.0	19.0
17	7.8	12.0	8.0	19.0
18	7.8	12.0	8.0	19.0
19	7.9	12.0	8.0	19.0
20	8.2	12.0	8.0	19.0
21	8.1	12.0	8.0	19.0
22	8.0	12.0	8.0	19.0
23	7.5	13.0	8.0	19.0
24	7.6	13.0	8.0	19.0
25	7.8	13.0	8.0	19.0
26	7.4	12.0	8.0	19.0
27	7.3	13.0	8.0	19.0
28	7.9	11.0	8.0	19.0
29	7.8	12.0	8.0	19.0
30	7.8	11.0	8.0	19.0
31	7.7	11.0	8.0	19.0
Jan-07			8.0	19.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

1	7.2	12.0	8.0	19.0
2	7.3	12.0	8.0	19.0
3	7.3	11.0	8.0	19.0
4	7.2	11.0	8.0	19.0
5	7.4	12.0	8.0	19.0
6	7.4	14.0	8.0	19.0
7	7.5	14.0	8.0	19.0
8	6.9	14.0	8.0	19.0
9	7.0	13.0	8.0	19.0
10	7.4	11.0	8.0	19.0
11	7.3	10.0	8.0	19.0
12	7.0	11.0	8.0	19.0
13	7.0	11.0	8.0	19.0
14	7.1	12.0	8.0	19.0
15	7.1	14.0	7.9	19.0
16	7.6	14.0	7.9	19.0
17	7.5	12.0	7.9	19.0
18	7.5	11.0	7.9	19.0
19	7.5	10.0	7.9	19.0
20	7.5	10.0	7.9	19.0
21	7.7	9.0	7.9	18.0
22	7.3	10.0	7.9	18.0
23	7.4	9.0	7.9	18.0
24	7.4	9.0	7.9	18.0
25	7.5	9.0	7.9	18.0
26	7.8	8.0	7.9	18.0
27	7.2	8.0	7.9	18.0
28	7.3	9.0	7.9	18.0
29	7.6	8.0	7.9	18.0
30	7.6	7.0	7.9	18.0
31	7.7	8.0	7.9	18.0
Feb-07			7.9	18.0
1	7.9	8.0	7.9	18.0
2	7.6	8.0	7.9	18.0
3	7.6	8.0	7.9	18.0
4	7.6	8.0	7.9	18.0
5	7.2	8.0	7.9	18.0
6	7.6	6.0	7.9	18.0
7	7.8	6.0	7.9	18.0
8	8.4	6.0	7.9	18.0
9	7.8	6.0	7.9	18.0
10	7.8	6.0	7.9	18.0
11	7.3	5.0	7.9	18.0
12	7.9	7.0	7.9	18.0
13	8.0	8.0	7.9	18.0
14	8.2	7.0	7.9	18.0
15	7.8	6.0	7.9	18.0
16	7.4	7.0	7.9	17.0
17	7.7	6.0	7.9	17.0
18	7.7	6.0	7.9	17.0
19	7.7	8.0	7.9	17.0
20	7.7	7.0	7.9	17.0
21	7.6	8.0	7.9	17.0
22	7.5	9.0	7.9	17.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

23	7.6	9.0	7.9	17.0
24	7.2	8.0	7.9	17.0
25	7.6	8.0	7.9	17.0
26	7.6	8.0	7.9	17.0
27	7.7	8.0	7.9	17.0
28	7.4	8.0	7.9	17.0
Mar-07			7.9	17.0
1	7.2	9.0	7.9	17.0
2	7.2	11.0	7.9	17.0
3	7.1	11.0	7.9	17.0
4	7.2	10.0	7.9	17.0
5	7.6	9.0	7.9	17.0
6	7.6	9.0	7.9	17.0
7	7.6	9.0	7.9	17.0
8	7.5	8.0	7.9	17.0
9	7.5	8.0	7.9	17.0
10	7.6	8.0	7.9	17.0
11	7.8	10.0	7.9	17.0
12	7.7	10.0	7.9	17.0
13	7.6	11.0	7.9	17.0
14	7.6	12.0	7.9	17.0
15	7.9	14.0	7.9	17.0
16	7.7	13.0	7.9	17.0
17	7.1	10.0	7.9	17.0
18	7.1	10.0	7.9	17.0
19	7.4	12.0	7.9	17.0
20	7.5	11.0	7.9	17.0
21	7.5	11.0	7.9	17.0
22	7.5	11.0	7.9	17.0
23	7.5	13.0	7.9	16.0
24	7.8	14.0	7.9	16.0
25	7.8	14.0	7.9	16.0
26	7.6	14.0	7.9	16.0
27	7.8	14.0	7.9	16.0
28	7.6	16.0	7.9	16.0
29	7.9	14.0	7.9	16.0
30	7.9	14.0	7.9	16.0
31	7.4	14.0	7.9	16.0
Apr-07			7.9	16.0
1	7.3	15.0	7.9	16.0
2	7.9	15.0	7.9	16.0
3	7.8	16.0	7.9	16.0
4	7.8	16.0	7.9	16.0
5	7.9	14.0	7.9	16.0
6	7.9	14.0	7.9	16.0
7	7.6	14.0	7.9	16.0
8	8.2	11.0	7.9	16.0
9	7.8	12.0	7.9	16.0
10	7.6	12.0	7.9	16.0
11	7.8	13.0	7.9	16.0
12	7.6	13.0	7.9	16.0
13	7.9	13.0	7.9	16.0
14	8.1	14.0	7.9	16.0
15	7.8	14.0	7.9	16.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

16	7.7	13.0	7.9	16.0
17	7.5	12.0	7.9	16.0
18	7.5	12.0	7.9	16.0
19	7.5	13.0	7.9	16.0
20	7.3	13.0	7.9	16.0
21	7.7	14.0	7.9	16.0
22	7.6	15.0	7.9	16.0
23	7.7	16.0	7.9	16.0
24	8.1	17.0	7.9	16.0
25	7.7	18.0	7.9	16.0
26	7.5	18.0	7.9	16.0
27	7.5	17.0	7.9	16.0
28	7.9	18.0	7.9	16.0
29	8.0	17.0	7.9	16.0
30	7.8	18.0	7.9	16.0
May-07			7.9	16.0
1	7.9	19.0	7.9	16.0
2	7.8	19.0	7.9	15.0
3	7.9	19.0	7.9	15.0
4	7.6	18.0	7.9	15.0
5	8.6	18.0	7.9	15.0
6	8.1	17.0	7.9	15.0
7	7.8	16.0	7.9	15.0
8	7.9	16.0	7.9	15.0
9	7.9	17.0	7.9	15.0
10	7.8	19.0	7.9	15.0
11	7.8	21.0	7.9	15.0
12	8.1	21.0	7.9	15.0
13	8.3	21.0	7.9	15.0
14	7.7	19.0	7.9	15.0
15	7.8	19.0	7.9	15.0
16	7.8	20.0	7.9	15.0
17	8.2	21.0	7.9	15.0
18	8.1	20.0	7.9	15.0
19	7.9	19.0	7.9	15.0
20	8.0	19.0	7.9	15.0
21	7.9	19.0	7.9	15.0
22	8.0	19.0	7.9	15.0
23	8.1	20.0	7.9	15.0
24	7.8	20.0	7.8	15.0
25	7.9	21.0	7.8	15.0
26	8.2	22.0	7.8	15.0
27	7.8	23.0	7.8	15.0
28	8.1	23.0	7.8	15.0
29	7.9	23.0	7.8	15.0
30	7.1	23.0	7.8	15.0
31	7.8	23.0	7.8	15.0
Jun-07			7.8	15.0
1	7.9	23.0	7.8	15.0
2	8.1	24.0	7.8	15.0
3	8.0	24.0	7.8	15.0
4	8.1	23.0	7.8	15.0
5	8.2	24.0	7.8	15.0
6	8.1	24.0	7.8	14.8

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

7	8.0	22.0	7.8	14.0
8	8.3	24.0	7.8	14.0
9	8.0	25.0	7.8	14.0
10	8.2	24.0	7.8	14.0
11	8.1	24.0	7.8	14.0
12	8.1	24.0	7.8	14.0
13	8.1	24.0	7.8	14.0
14	7.9	23.0	7.8	14.0
15	8.2	22.0	7.8	14.0
16	8.2	22.0	7.8	14.0
17	8.3	22.0	7.8	14.0
18	8.1	23.0	7.8	14.0
19	8.0	26.0	7.8	14.0
20	8.3	26.0	7.8	14.0
21	8.2	24.0	7.8	14.0
22	8.2	24.0	7.8	14.0
23	8.2	23.0	7.8	14.0
24	8.2	23.0	7.8	14.0
25	8.2	23.0	7.8	14.0
26	8.0	24.0	7.8	14.0
27	8.2	25.0	7.8	14.0
28	8.2	26.0	7.8	14.0
29	8.1	25.0	7.8	14.0
30	8.3	26.0	7.8	14.0
Jul-07			7.8	14.0
1	8.3	25.0	7.8	14.0
2	8.2	25.0	7.8	14.0
3	8.2	24.0	7.8	14.0
4	8.2	24.0	7.8	14.0
5	8.3	24.0	7.8	14.0
6	8.1	24.0	7.8	14.0
7	8.2	25.0	7.8	14.0
8	8.3	25.0	7.8	14.0
9	8.3	26.0	7.8	14.0
10	8.3	26.0	7.8	14.0
11	8.1	26.0	7.8	14.0
12	8.3	26.0	7.8	14.0
13	8.1	26.0	7.8	14.0
14	8.2	26.0	7.8	14.0
15	8.4	26.0	7.8	14.0
16	8.3	26.0	7.8	14.0
17	8.3	26.0	7.8	14.0
18	8.2	26.0	7.8	14.0
19	8.3	26.0	7.8	14.0
20	8.4	27.0	7.8	14.0
21	8.5	25.0	7.8	14.0
22	8.5	25.0	7.8	14.0
23	8.2	24.0	7.8	14.0
24	8.2	24.0	7.8	14.0
25	8.3	25.0	7.8	14.0
26	8.2	25.0	7.8	14.0
27	8.3	25.0	7.8	14.0
28	8.3	26.0	7.8	14.0
29	8.3	26.0	7.8	13.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

30	8.2	26.0	7.8	13.0
31	8.3	26.0	7.8	13.0
Aug-07			7.8	13.0
1	8.3	26.0	7.8	13.0
2	8.3	26.0	7.8	13.0
3	8.2	26.0	7.8	13.0
4	8.2	27.0	7.8	13.0
5	8.3	27.0	7.8	13.0
6	8.3	28.0	7.8	13.0
7	8.4	28.0	7.8	13.0
8	8.3	29.0	7.8	13.0
9	8.2	28.0	7.8	13.0
10	8.3	29.0	7.8	13.0
11	8.2	27.0	7.8	13.0
12	8.2	26.0	7.8	13.0
13	8.4	26.0	7.8	13.0
14	8.4	26.0	7.8	13.0
15	8.3	26.0	7.8	13.0
16	8.2	26.0	7.8	13.0
17	8.4	26.0	7.8	13.0
18	8.2	26.0	7.8	13.0
19	8.2	26.0	7.8	13.0
20	8.2	25.0	7.8	13.0
21	8.1	24.0	7.8	13.0
22	8.0	25.0	7.8	13.0
23	8.2	24.0	7.8	13.0
24	8.2	25.0	7.8	13.0
25	8.4	26.0	7.8	13.0
26	8.5	27.0	7.8	13.0
27	8.1	26.0	7.8	13.0
28	8.2	26.0	7.8	13.0
29	8.3	27.0	7.8	13.0
30	8.6	26.0	7.8	13.0
31	8.1	26.0	7.8	13.0
Sep-07			7.8	13.0
1	8.4	26.0	7.7	13.0
2	8.3	25.0	7.7	13.0
3	8.5	25.0	7.7	13.0
4	8.3	25.0	7.7	13.0
5	8.3	25.0	7.7	13.0
6	8.4	26.0	7.7	13.0
7	8.4	26.0	7.7	13.0
8	8.4	25.0	7.7	13.0
9	8.6	26.0	7.7	13.0
10	8.4	27.0	7.7	13.0
11	8.5	27.0	7.7	13.0
12	8.3	26.0	7.7	13.0
13	8.4	25.0	7.7	13.0
14	8.3	25.0	7.7	13.0
15	8.3	24.0	7.7	13.0
16	8.5	23.0	7.7	13.0
17	8.6	23.0	7.7	12.0
18	8.2	22.0	7.7	12.0
19	8.3	22.0	7.7	12.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

20	8.3	22.0	7.7	12.0
21	8.3	23.0	7.7	12.0
22	8.3	22.0	7.7	12.0
23	8.3	23.0	7.7	12.0
24	8.3	24.0	7.7	12.0
25	8.2	24.0	7.7	12.0
26	8.2	24.0	7.7	12.0
27	8.4	24.0	7.7	12.0
28	8.3	25.0	7.7	12.0
29	8.4	24.0	7.7	12.0
30	8.6	23.0	7.7	12.0
Oct-07			7.7	12.0
1	8.97	22.0	7.7	12.0
2	8.3	23.0	7.7	12.0
3	8.3	23.0	7.7	12.0
4	8.4	24.0	7.7	12.0
5	8.4	25.0	7.7	12.0
6	8.4	24.0	7.7	12.0
7	8.3	24.0	7.7	12.0
8	8.2	25.0	7.7	12.0
9	8.1	25.0	7.7	12.0
10	8.2	25.0	7.7	12.0
11	8.3	24.0	7.7	12.0
12	8.3	22.0	7.7	12.0
13	8.4	21.0	7.7	12.0
14	8.3	20.0	7.7	12.0
15	8.2	20.0	7.7	12.0
16	8.2	20.0	7.7	12.0
17	8.1	21.0	7.7	12.0
18	8.1	22.0	7.7	12.0
19	8.1	23.0	7.7	12.0
20	8.2	22.0	7.7	12.0
21	8.2	21.0	7.7	12.0
22	7.9	21.0	7.7	12.0
23	8.1	22.0	7.7	12.0
24	8.1	23.0	7.7	12.0
25	8.1	20.0	7.7	12.0
26	8.0	20.0	7.7	12.0
27	7.9	21.0	7.7	12.0
28	7.9	20.0	7.7	12.0
29	8.0	19.0	7.7	12.0
30	8.0	18.0	7.7	12.0
31	8.0	18.0	7.7	12.0
Nov-07			7.7	12.0
1	8.0	19.0	7.7	12.0
2	8.1	18.0	7.7	12.0
3	8.4	17.0	7.7	12.0
4	8.3	17.0	7.7	12.0
5	8.0	17.0	7.7	12.0
6	8.2	17.0	7.6	11.7
7	7.9	16.0	7.6	11.0
8	8.1	15.0	7.6	11.0
9	8.1	15.0	7.6	11.0
10	8.2	15.0	7.6	11.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

11	8.0	14.0	7.6	11.0
12	8.0	15.0	7.6	11.0
13	7.9	15.0	7.6	11.0
14	8.0	15.0	7.6	11.0
15	8.1	17.0	7.6	11.0
16	8.0	16.0	7.6	11.0
17	8.1	15.0	7.6	11.0
18	8.2	15.0	7.6	11.0
19	8.0	15.0	7.6	11.0
20	8.1	15.0	7.6	11.0
21	8.1	16.0	7.6	11.0
22	8.2	16.0	7.6	11.0
23	8.2	15.0	7.6	11.0
24	8.2	14.0	7.6	11.0
25	8.1	14.0	7.6	11.0
26	7.9	14.0	7.6	11.0
27	8.0	16.0	7.6	11.0
28	8.2	15.0	7.6	11.0
29	7.9	14.0	7.6	11.0
30	7.9	13.0	7.6	11.0
Dec-07			7.6	11.0
1	7.9	15.0	7.6	11.0
2	7.8	14.0	7.6	11.0
3	8.0	13.0	7.6	11.0
4	8.1	12.0	7.6	11.0
5	8.2	12.0	7.6	11.0
6	7.9	11.0	7.6	11.0
7	8.1	11.0	7.6	11.0
8	8.3	11.0	7.6	11.0
9	8.2	12.0	7.6	11.0
10	8.0	12.0	7.6	11.0
11	8.1	13.0	7.6	11.0
12	8.0	13.0	7.6	11.0
13	8.2	13.0	7.6	11.0
14	8.3	14.0	7.6	11.0
15	8.0	12.0	7.6	11.0
16	8.0	12.0	7.6	11.0
17	7.9	11.0	7.6	11.0
18	8.0	10.0	7.6	11.0
19	8.0	10.0	7.6	11.0
20	8.0	10.0	7.6	11.0
21	7.8	10.0	7.6	11.0
22	8.1	11.0	7.6	11.0
23	8.1	11.0	7.6	11.0
24	8.0	11.0	7.6	11.0
25	8.3	11.0	7.6	11.0
26	8.2	11.0	7.6	11.0
27	8.0	11.0	7.6	11.0
28	7.8	11.0	7.6	11.0
29	8.0	12.0	7.6	11.0
30	7.9	12.0	7.6	11.0
31	8.3	11.0	7.6	11.0
Jan-08			7.6	11.0
1	8.1	12.0	7.6	11.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

2	8.2	11.0	7.6	11.0
3	7.9	9.0	7.6	11.0
4	7.9	10.0	7.6	11.0
5	7.9	10.0	7.6	11.0
6	7.8	11.0	7.6	11.0
7	8.0	11.0	7.5	11.0
8	8.0	12.0	7.5	11.0
9	7.9	13.0	7.5	11.0
10	8.0	13.0	7.5	11.0
11	8.0	13.0	7.5	11.0
12	8.1	12.0	7.5	11.0
13	8.2	12.0	7.5	11.0
14	7.8	12.0	7.5	11.0
15	8.1	11.0	7.5	11.0
16	7.9	10.0	7.5	11.0
17	8.1	11.0	7.5	11.0
18	7.9	9.0	7.5	10.0
19	8.0	10.0	7.5	10.0
20	8.1	9.0	7.5	10.0
21	8.0	8.0	7.5	10.0
22	7.7	8.0	7.5	10.0
23	8.0	8.0	7.5	10.0
24	7.8	8.0	7.5	10.0
25	7.8	8.0	7.5	10.0
26	8.1	7.0	7.5	10.0
27	8.2	8.0	7.5	10.0
28	8.0	9.0	7.5	10.0
29	7.9	9.0	7.5	10.0
30	7.9	10.0	7.5	10.0
31	8.1	9.0	7.5	10.0
Feb-08			7.5	10.0
1	7.6	9.0	7.5	10.0
2	7.9	9.0	7.5	10.0
3	7.9	9.0	7.5	10.0
4	7.8	10.0	7.5	10.0
5	7.8	11.0	7.5	10.0
6	7.8	12.0	7.5	10.0
7	7.8	13.0	7.5	10.0
8	8.1	12.0	7.5	10.0
9	8.2	12.0	7.5	10.0
10	8.4	12.0	7.5	10.0
11	7.9	10.0	7.5	10.0
12	8.0	9.0	7.5	10.0
13	7.8	10.0	7.5	10.0
14	7.9	9.0	7.5	10.0
15	7.8	9.0	7.5	10.0
16	8.0	10.0	7.5	10.0
17	7.9	10.0	7.5	10.0
18	7.8	11.0	7.5	10.0
19	7.9	10.0	7.5	10.0
20	7.6	11.0	7.5	10.0
21	8.0	10.0	7.5	10.0
22	7.8	9.0	7.5	10.0
23	7.9	9.0	7.5	10.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

24	8.1	9.0	7.4	10.0
25	7.7	10.0	7.4	10.0
26	8.1	10.0	7.4	10.0
27	8.0	11.0	7.4	10.0
28	8.0	10.0	7.4	10.0
29	8.1	8.0	7.4	10.0
Mar-08			7.4	10.0
1	8.1	9.0	7.4	10.0
2	8.2	10.0	7.4	10.0
3	7.3	10.0	7.4	10.0
4	7.9	13.0	7.4	10.0
5	7.8	14.0	7.4	10.0
6	7.7	13.0	7.4	10.0
7	7.9	12.0	7.4	10.0
8	7.8	13.0	7.4	9.0
9	7.8	11.0	7.4	9.0
10	7.9	11.0	7.4	9.0
11	7.9	12.0	7.4	9.0
12	7.7	12.0	7.4	9.0
13	7.9	12.0	7.4	9.0
14	7.8	13.0	7.4	9.0
15	7.8	14.0	7.4	9.0
16	7.8	14.0	7.4	9.0
17	7.9	13.0	7.4	9.0
18	7.9	13.0	7.4	9.0
19	7.9	14.0	7.4	9.0
20	8.0	14.0	7.4	9.0
21	7.9	13.0	7.4	9.0
22	7.9	14.0	7.4	9.0
23	7.8	14.0	7.4	9.0
24	8.1	13.0	7.4	9.0
25	7.8	12.0	7.4	9.0
26	7.7	13.0	7.4	9.0
27	8.0	13.0	7.4	9.0
28	8.0	14.0	7.4	9.0
29	8.2	14.0	7.3	9.0
30	8.2	13.0	7.3	9.0
31	8.2	13.0	7.3	9.0
Apr-08			7.3	9.0
1	7.6	14.0	7.3	9.0
2	8.1	15.0	7.3	9.0
3	8.1	14.0	7.3	9.0
4	7.9	14.0	7.3	9.0
5	7.9	15.0	7.3	9.0
6	7.8	15.0	7.3	9.0
7	7.9	14.0	7.3	9.0
8	7.9	14.0	7.3	9.0
9	7.9	14.0	7.3	9.0
10	8.1	15.0	7.3	9.0
11	8.0	16.0	7.3	9.0
12	8.0	18.0	7.3	9.0
13	8.1	17.0	7.3	9.0
14	8.2	16.0	7.3	9.0
15	8.1	15.0	7.3	9.0

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

16	8.0	15.0	7.3	9.0
17	7.9	15.0	7.3	9.0
18	7.8	16.0	7.3	9.0
19	7.7	17.0	7.3	9.0
20	7.9	17.0	7.3	9.0
21	7.8	18.0	7.3	8.0
22	7.9	17.0	7.2	8.0
23	7.9	19.0	7.2	8.0
24	7.9	19.0	7.2	8.0
25	8.0	19.0	7.2	8.0
26	7.8	19.0	7.2	8.0
27	7.8	19.0	7.2	8.0
28	8.1	19.0	7.2	8.0
29	8.0	19.0	7.2	8.0
30	7.9	17.0	7.2	8.0
May-08			7.2	8.0
1	8.2	18.0	7.2	8.0
2	7.9	18.0	7.2	8.0
3	8.0	19.0	7.2	8.0
4	8.1	20.0	7.2	8.0
5	8.0	19.0	7.2	8.0
6	8.1	20.0	7.2	8.0
7	8.1	20.0	7.2	8.0
8	8.1	20.0	7.2	8.0
9	7.9	21.0	7.1	8.0
10	8.0	20.0	7.1	8.0
11	8.0	19.0	7.1	8.0
12	7.4	18.0	7.1	8.0
13	7.3	16.0	7.1	8.0
14	7.7	17.0	7.1	8.0
15	7.8	18.0	7.1	8.0
16	7.6	19.0	7.1	8.0
17	7.6	19.0	7.1	8.0
18	7.8	19.0	7.1	8.0
19	7.8	19.0	7.1	7.0
20	7.8	19.0	7.0	7.0
21	7.6	19.0	7.0	7.0
22	7.9	18.0	7.0	7.0
23	7.9	19.0	7.0	7.0
24	8.0	20.0	7.0	7.0
25	7.9	20.0	7.0	6.0
26	8.1	20.0	7.0	6.0
27	7.8	21.0	7.0	6.0
28	7.8	21.0	7.0	6.0
29	8.0	20.0	6.9	6.0
30	8.3	21.0	6.9	6.0
31	7.9	21.0	6.9	6.0
Jun-08			6.8	6.0
1	7.8	21.0	1.0	5.0
2	8.1	22.0		
3	7.9	22.0		
4	8.2	23.0		
5	8.0	23.0		
6	7.9	23.0		

Dahlgren WWTP pH and Temperature Data (January 2006-June 2008)

7	8.0	23.0
8	7.8	24.0
9	7.9	25.0
10	8.0	26.0
11	7.9	26.0
12	8.2	25.0
13	8.0	26.0
14	8.1	25.0
15	8.2	25.0
16	8.1	25.0
17	7.8	24.0
18	8.1	24.0
19	8.0	23.0
20	8.1	23.0
21	8.1	24.0
22	8.0	24.0
23	7.9	25.0
24	7.7	24.0
25	8.0	24.0
26	7.8	25.0
27	8.0	26.0
28	8.0	26.0
29	8.1	27.0
30	8.0	26.0

Define Point of Interest

38,19,24.0 -77,03,10.9
is the Search Point

Submit Cancel

Search Point

- **Change** to "clicked" map point
- **Fixed** at 38,19,24.0 -77,03,10.9

Show Position Rings

Yes No
1 mile and 1/4 mile at the **Search Point**

Show Search Area

Yes No
2 miles

Search Point is at map center

Base Map Choices

Topography

Map Overlay Choices

Current List: Position, Search

Map Overlay Legend

Position Rings 1 mile and 1 4 mile at the Search Point

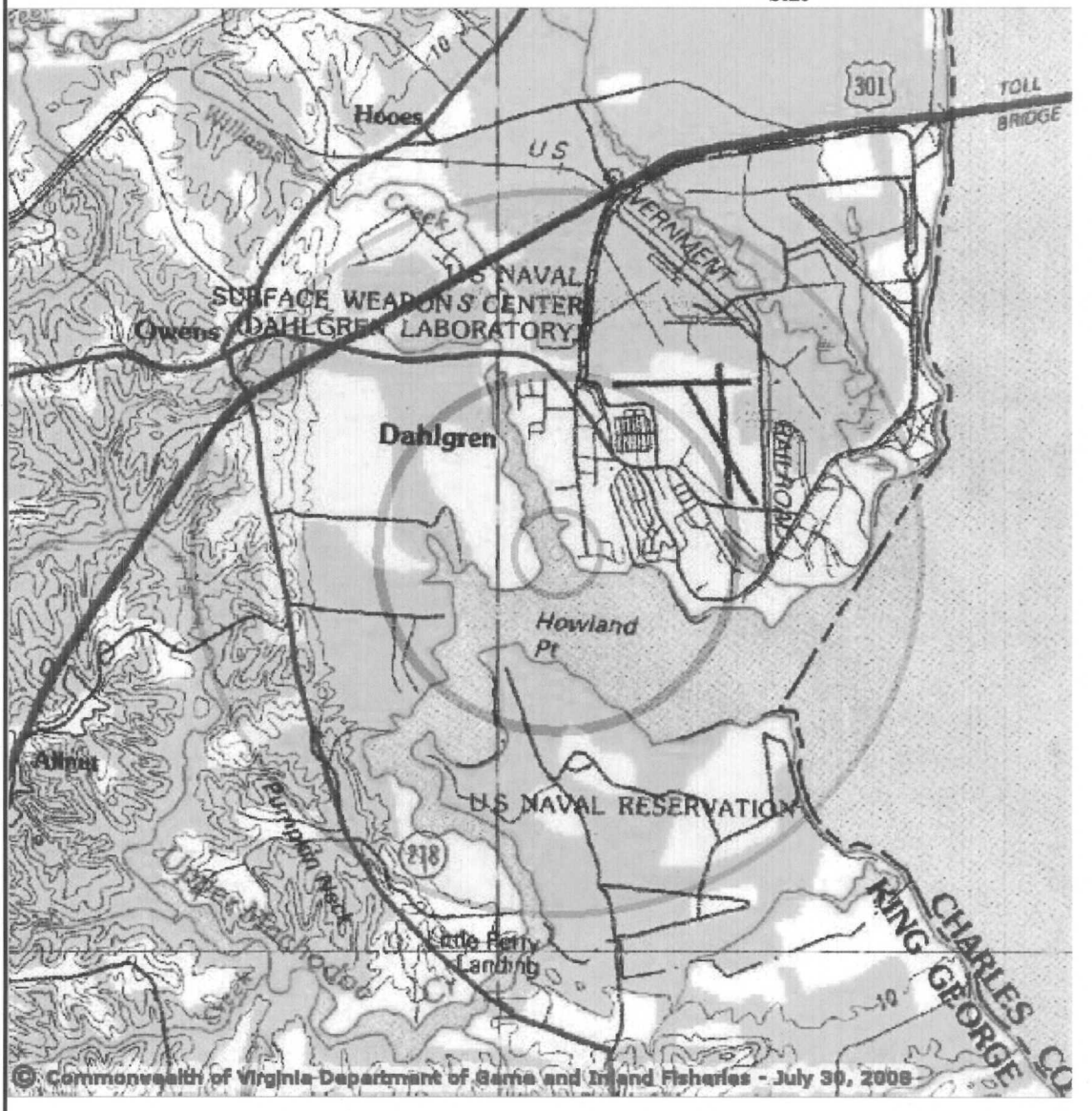
2 mile radius Search Area

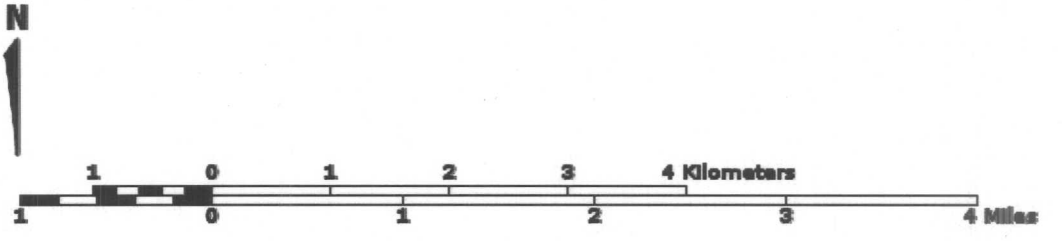
Map Click Pan Id M

Refresh Browser Page

Map Scale In Zoom Out

Screen Size Small Size





Point of Search 38,19,24.0 -77,03,10.9
Map Location 38,19,24.0 -77,03,10.9

Attachment 9

Select **Coordinate System:** (●) Degrees,Minutes,Seconds Latitude - Longitude

( ) Decimal Degrees Latitude - Longitude

( ) Meters UTM NAD83 East North Zone

( ) Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see terraserver-usa.com for details)

Map projection is UTM Zone 18 NAD 1983 with left 315747 and top 4248498. Pixel size is 16 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West.Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixles. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet eas to west by 31501 feet north to south for a total of 35.5 square miles.

Black and white aerial photography aquired near 1990 and topographic maps are from the United States Department of the Interior, United States Geological Survey.
Shaded topographic maps are from TOPO! ©2006 National Geographic
http://www.nationa.geographic.com/topo
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network
All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2008-07-30 15:10:30 (qa/qc May 21, 2008 10 49 - tn=193530 dist=3218 I)

Virginia Department of Game and Inland Fisheries

7/30/2008 3:09:04 PM

Fish and Wildlife Information Service

VaFWIS Initial Project Assessment Report Compiled on 7/30/2008, 3:09:04 PM

Help

Known or likely to occur within a **2 mile radius of 38,19,24. 77,03,11.** in **099 King George County, VA**

385 Known or Likely Species ordered by Status Concern for Conservation (displaying first 25) (25 species with Status* or Tier I**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
040129	ST	I	Sandpiper, upland	Bartramia longicauda		BOVA
040293	ST	I	Shrike, loggerhead	Lanius ludovicianus		BOVA
040093	FSST	II	Eagle, bald	Haliaeetus leucocephalus	Yes	Collections,BBA,BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
010032	SS	II	Sturgeon, Atlantic	Acipenser oxyrinchus		BOVA
040266	SS	II	Wren, winter	Troglodytes troglodytes		BOVA
030063	CC	III	Turtle, spotted	Clemmys guttata		BOVA
040094	SS	III	Harrier, northern	Circus cyaneus		BOVA
040034	SS	III	Heron, tricolored	Egretta tricolor		BOVA
040036	SS	III	Night-heron, yellow-crowned	Nyctanassa violacea violacea		BOVA
040204	SS	III	Owl, barn	Tyto alba pratincola		BOVA
040264	SS	IV	Creeper, brown	Certhia americana		BOVA
040180	SS	IV	Tern, Forster's	Sterna forsteri		BOVA
040364	SS		Dickcissel	Spiza americana		BOVA
040032	SS		Egret, great	Ardea alba egretta		BOVA
040366	SS		Finch, purple	Carpodacus purpureus		BOVA
040285	SS		Kinglet, golden-crowned	Regulus satrapa		BOVA
			Moorhen,	Gallinula		

040112	SS		common	chloropus cachinnans		BOVA
040262	SS		Nuthatch, red-breasted	Sitta canadensis		BOVA
040189	SS		Tern, Caspian	Sterna caspia		BOVA
040278	SS		Thrush, hermit	Catharus guttatus		BOVA
040314	SS		Warbler, magnolia	Dendroica magnolia		BOVA
050045	SS		Otter, northern river	Lontra canadensis lataxina		BOVA
040225		I	Sapsucker, yellow-bellied	Sphyrapicus varius		BOVA
040319		I	Warbler, black-throated green	Dendroica virens		BOVA

To view **All 385 species** View 385

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; SC=State Candidate; CC=Collection Concern; SS=State Special Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Anadromous Fish Use Streams (4 records)

View Map of All Anadromous Fish Use Streams

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE*	Highest Tier**	
C64	Potomac river	Confirmed	6		IV	Yes
P171	Upper Machodoc creek	Potential	0			Yes
P179	Williams creek	Potential	0			Yes
P67	Gambo creek	Potential	0			Yes

Fish Impediments

N/A

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters

N/A

Cold Water Stream Survey (Trout Streams)
Summary of Recent Observations

N/A

Public Holdings: (1 names)

Name	Agency	Level
Dahlgren	U.S. Coast Guard	Federal

audit no. 193530 7/30/2008 3:09:04 PM Virginia Fish and Wildlife Information Service

Anadromous Fish Use Streams

38,19,24.0 -77,03,11.0
is **the Search Point**

Show Position Rings
○ Yes ◉ No
1 mile and 1/4 mile at the **Search Point**

Show Search Area
◉ Yes ○ No
2 miles

Search Point is at map center

Base Map Choices
Topography

Map Overlay Choices
Current List: Search, Anadromous

Map Overlay Legend

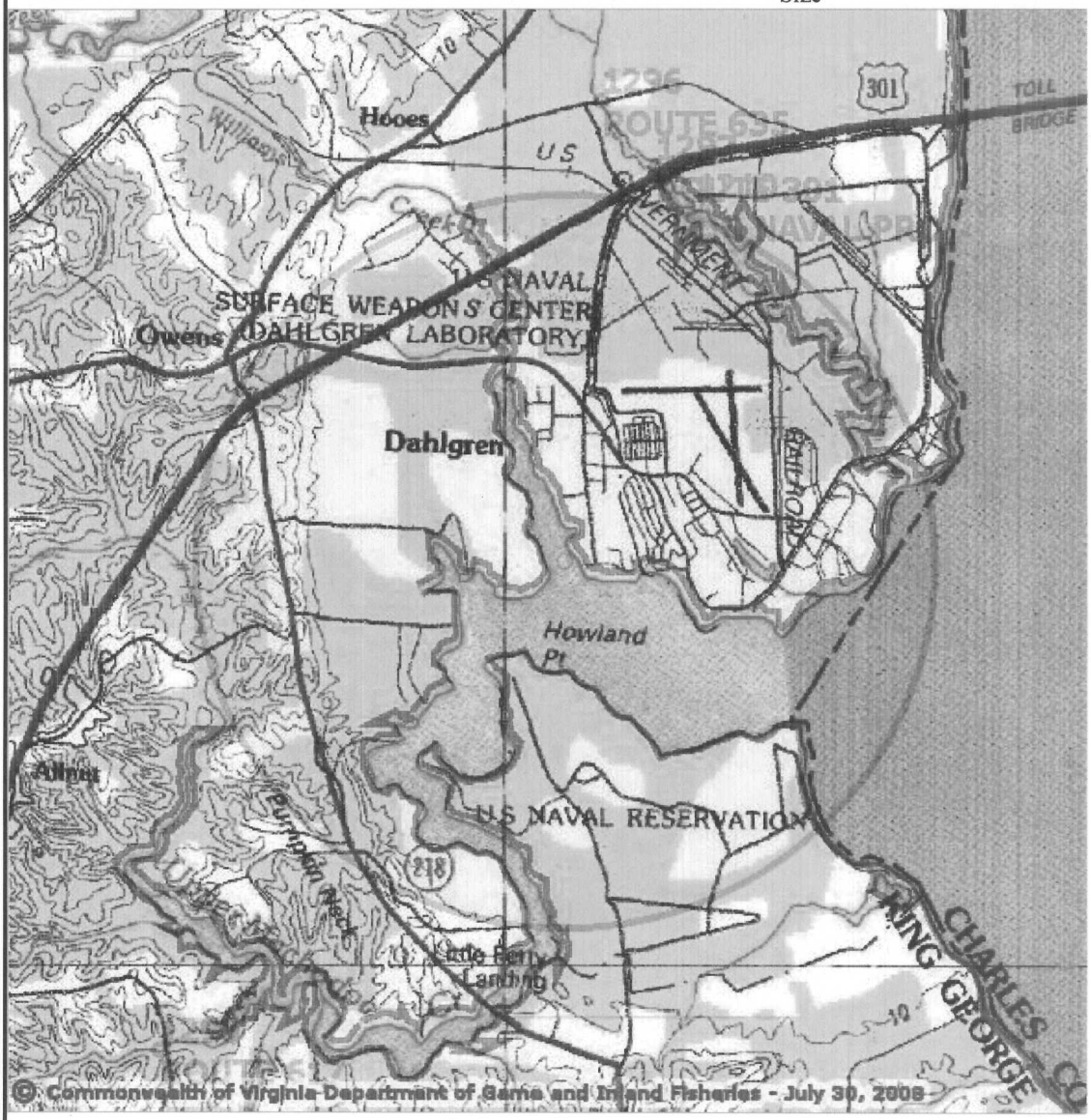
Anadromous Fish Reach
Confirmed
Potential
123 **Impediment**
2 mile radius Search Area

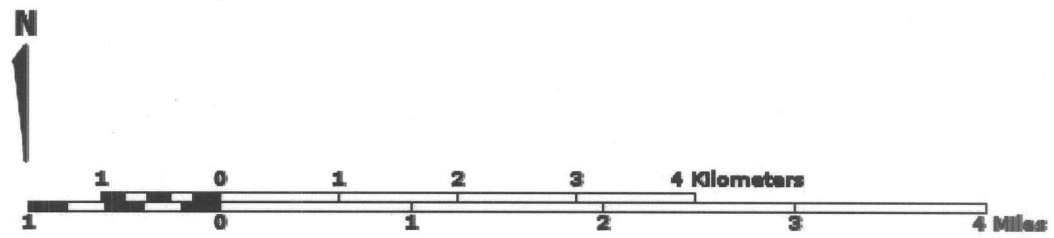
Refresh Browser Page

Map Click Pan In Out

Map Scale In Zoom Out

Screen Size Small Size





Point of Search 38,19,24.0 -77,03,11.0
Map Location 38,19,24.0 -77,03,11.0

Select **Coordinate System:** (●) Degrees,Minutes,Seconds Latitude - Longitude
( ) Decimal Degrees Latitude - Longitude
( ) Meters UTM NAD83 East North Zone
( ) Meters UTM NAD27 East North Zone

Base Map source: USGS 1:100,000 topographic maps (see terraserver-usa.com for details)

Map projection is UTM Zone 18 NAD 1983 with left 315746 and top 4248498. Pixel size is 16 meters . Coordinates displayed are Degrees, Minutes, Seconds North and West.Map is currently displayed as 600 columns by 600 rows for a total of 360000 pixles. The map display represents 9600 meters east to west by 9600 meters north to south for a total of 92.1 square kilometers. The map display represents 31501 feet eas to west by 31501 feet north to south for a total of 35.5 square miles.

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http://www.nationa.geographic.com/topo
Color aerial photography aquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network
All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2008-07-30 15:16:39 (qa/qc May 21, 2008 10 49 - tn=193538 dist=3218 I)

Facility = Dahlgren Wastewater Treatment Plant
Chemical = Ammonia
Chronic averaging period = 30
WLAa = 140
WLAc = 21
Q.L. = .2
# samples/mo. = 1
# samples/wk. = 1

Units are expressed in mg/L.

8/6/08

Summary of Statistics:

observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

9

Untitled

Model Using VIMS TPWQM
Date: Wed,August 28,2002

Receiving stream : Upper Machodoc 2
Facility Name : Dahlgren WWTP
Permit Number : VA0026514

Effluent Quality Characteristics

Discharge : 1.00 MGD
tP : 2.00 mg/l
TKN : 20.00 mg/l
CBOD5 : 25.00 mg/l
dO : 6.00 mg/l
FCB : 200.00 mg/l

Model Predictions

Spatially MINIMUM daily mean DO : 5.69 mg/l
Spatially MINIMUM daily minimum DO : 5.61 mg/l
spatially MAXIMUM daily mean chlorophyll : 10.21 µg/l
Spatially MAXIMUM daily mean BOD5 : 2.05 mg/l
Spatially MAXIMUM daily mean TKN : 0.41 mg/l

Water Quality Standard is MET !!!

Attachment 11

Untitled

Model Using VIMS TPWQM
Date: Wed,August 28,2002

Receiving stream : Upper Machodoc 2
Facility Name : Dahlgren WWTP
Permit Number : VA0026514

Effluent Quality Characteristics

Discharge : 1.00 MGD
tP : 2.00 mg/l
TKN : 15.00 mg/l
CBOD5 : 25.00 mg/l
dO : 6.00 mg/l
FCB : 200.00 mg/l

Model Predictions

Spatially MINIMUM daily mean DO : 5.70 mg/l
Spatially MINIMUM daily minimum DO : 5.62 mg/l
spatially MAXIMUM daily mean chlorophyll : 9.28 µg/l
spatially MAXIMUM daily mean BOD5 : 2.03 mg/l
Spatially MAXIMUM daily mean TKN : 0.39 mg/l

Water Quality Standard is MET !!!

Untitled

Model Using VIMS TPWQM
Date: Wed,August 28,2002

Receiving stream : Upper Machodoc 2
Facility Name : Dahlgren WWTP
Permit Number : VA0026514

Effluent Quality Characteristics

Discharge : 1.00 MGD
TP : 2.00 mg/l
TKN : 10.00 mg/l
CBOD5 : 25.00 mg/l
DO : 6.00 mg/l
FCB : 200.00 mg/l

Model Predictions

Spatially MINIMUM daily mean DO : 5.72 mg/l
Spatially MINIMUM daily minimum DO : 5.64 mg/l
Spatially MAXIMUM daily mean chlorophyll : 8.36 µg/l
Spatially MAXIMUM daily mean BOD5 : 2.01 mg/l
Spatially MAXIMUM daily mean TKN : 0.39 mg/l

Water Quality Standard is MET !!!

MEMORANDUM
DEPARTMENT OF ENVIRONMENTAL QUALITY
Northern Virginia Regional Office
13901 Crown Court Woodbridge, VA 22193 (703)583-3840

SUBJECT: TOXICITIES MANAGEMENT PROGRAM DATA REVIEW
Dahlgren District Wastewater Treatment Plant VA0026514
REVIEWER: Shih-Cheng Chang
DATE: October 5, 2005
COPIES: Tom Faha

The permit for the Dahlgren District WWTP was reissued in March 2003. The permit contains a semi-annual WET limit of 1.44 TUc to *P. promelas* for Outfall 001 when discharging to Upper William Creek, and a WET limit of 25 TUc when discharging to Lower William Creek.

The permit however does not include a special condition for TMP, which normally would identify the specific toxicity test and the test species to be used in the WET testing, the monitoring frequency and test schedule, as well as the requirement and schedule for submitting the test report.

Review of the DMR records on file does indicate that WET chronic toxicity to P. *promelas* was reported in the DMRs for August 2003, February 2004, August 2004 and February 2005. All showed an effluent WET value of 1. TUc, less than and thus met the WET limit of 1.44 TUc. But there are no test reports accompanying any of the DMRs. This apparently is due to the fact that the permit does not specifically require submittal of the toxicity test report for the chronic toxicity test.

Attachment 12

Spreadsheet for determination of WET test endpoints or WET limits

Excel 97
Revision Date: 01/10/05
File: WETLIM10.xls
(MIX.EXE required also)

Acute Endpoint/Permit Limit — Use as LC_{50} in Special Condition, as TUa on DMR

ACUTE 2.998278102 TUa — LC_{50} = 34 % Use as 2.94 TUa

ACUTE WLAa 6.15 — Note: Inform the permittee that if the mean of the data exceeds this TUa: 1.0 a limit may result using WLA.EXE

Chronic Endpoint/Permit Limit — Use as NOEC in Special Condition, as TUc on DMR

CHRONIC	29.98278102 TU_c	NOEC =	4 %	Use as 25.00	TU_c
BOTH*	61.50000151 TU_c	NOEC =	2 %	Use as 50.00	TU_c
AML	29.98278102 TU_c	NOEC =	4 %	Use as 25.00	TU_c

ACUTE WLAa,c 61.5
CHRONIC WLAc 20.5
* Both means acute expressed as chronic

Note: Inform the permittee that if the mean of the data exceeds this TUc: 12.3212641 a limit may result using WLA.EXE

Enter data in the cells with blue type:

Entry Date: 07/30/08
Facility Name: Dahlgren District WWTP
VPDES Number: VA0026514
Outfall Number: 1

Plant Flow: 1 MGD
Acute 1Q10: 0 MGD
Chronic 7Q10: 0 MGD

% Flow to be used from MIX.EXE
100 %
100 %

Difuser /modeling study?
Enter Y/N Y
Acute 20.5 :1
Chronic 20.5 :1

Are data available to calculate CV? (Y/N) N (Minimum of 10 data points, same species, needed) Go to Page 2
Are data available to calculate ACR? (Y/N) N (NOEC<LC50, do not use greater/less than data) Go to Page 3

IWC_a 4.87804878 % Plant flow/plant flow + 1Q10
IWC_c 4.87804878 % Plant flow/plant flow + 7Q10

NOTE: If the IWCa is >33%, specify the NOAEC = 100% test/endpoint for use

Dilution, acute 20.5 100/IWCa
Dilution, chronic 20.5 100/IWCc

WLA_a 6.15 Instream criterion (0.3 TUa) X's Dilution, acute
WLA_c 20.5 Instream criterion (1.0 TUc) X's Dilution, chronic
$WLA_{a,c}$ 61.5 ACR X's WLA_a - converts acute WLA to chronic units

ACR -acute/chronic ratio 10 LC50/NOEC (Default is 10 - if data are available, use tables Page 3)
CV-Coefficient of variation 0.6 Default of 0.6 - if data are available, use tables Page 2)
Constants eA 0.4109447 Default = 0.41
eB 0.6010373 Default = 0.60
eC 2.4334175 Default = 2.43
eD 2.4334175 Default = 2.43 (1 samp) No. of samples 1

**The Maximum Daily Limit is calculated from the lowest LTA, X's eC. The LTAa,c and MDL using it are driven by the ACR.

						Rounded NOEC's	%
$LTA_{a,c}$	25.27309905	WLAa,c X's eA					
LTA_c	12.32126465	WLAc X's eB					
MDL** with $LTA_{a,c}$	61.50000151	TU_c	NOEC =	1.626016	(Protects from acute/chronic toxicity)	NOEC =	2 %
MDL** with LTA_c	29.98278102	TU_c	NOEC =	3.335248	(Protects from chronic toxicity)	NOEC =	4 %
AML with lowest LTA	29.98278102	TU_c	NOEC =	3.335248	Lowest LTA X's eD	NOEC =	4

IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU_c to TU_a

					Rounded LC50's	%
MDL with $LTA_{a,c}$	6.150000151	TU_a	LC50 =	16.260162 %	LC50 =	17 %
MDL with LTA_c	2.998278102	TU_a	LC50 =	33.352477 %	LC50 =	34

Page 2 - Follow the directions to develop a site specific CV (coefficient of variation)

IF YOU HAVE AT LEAST 10 DATA POINTS THAT ARE QUANTIFIABLE (NOT "<" OR ">") FOR A SPECIES, ENTER THE DATA IN EITHER COLUMN "G" (VERTEBRATE) OR COLUMN "J" (INVERTEBRATE). THE 'CV' WILL BE PICKED UP FOR THE CALCULATIONS BELOW. THE DEFAULT VALUES FOR eA, eB, AND eC WILL CHANGE IF THE 'CV' IS ANYTHING OTHER THAN 0.6.

	Vertebrate IC_{25} Data or LC_{50} Data	LN of data	Invertebrate IC_{25} Data or LC_{50} Data	LN of data
	**********		**********	
1	0		0	
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Coefficient of Variation for effluent tests

CV = 0.6 (Default 0.6)

δ^2 = 0.3074847

δ = 0.554513029

Using the log variance to develop eA
(P. 100, step 2a of TSD)

Z = 1.881 (97% probability stat from table

A = -0.88929666

eA = 0.410944686

Using the log variance to develop eB
(P. 100, step 2b of TSD)

δ_4^2 = 0.086177696

δ_4 = 0.293560379

B = -0.50909823

eB = 0.601037335

St Dev	NEED DATA	NEED DATA	St Dev	NEED DATA	NEED DATA
Mean	0	0	Mean	0	0
Variance	0	0.000000	Variance	0	0.000000
CV	0		CV	0	

Using the log variance to develop eC
(P. 100, step 4a of TSD)

δ^2 = 0.3074847

δ = 0.554513029

C = 0.889296658

eC = 2.433417525

Using the log variance to develop eD
(P. 100, step 4b of TSD)

n = 1 This number will most likely stay as "1", for 1 sample/month.

δ_n^2 = 0.3074847

δ_n = 0.554513029

D = 0.889296658

eD = 2.433417525

Page 3 - Follow directions to develop a site specific ACR (Acute to Chronic Ratio)

To determine Acute/Chronic Ratio (ACR), insert usable data below. Usable data is defined as valid paired test results, acute and chronic, tested at the same temperature, same species. The chronic NOEC must be less than the acute LC_{50}, since the ACR divides the LC_{50} by the NOEC. LC_{50}'s >100% should not be used.

Table 1. ACR using Vertebrate data

Set #	LC_{50}	NOEC	Test ACR	Logarithm	Geomean	Antilog	ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA

ACR for vertebrate data: 0

Table 1. Result:	Vertebrate ACR	0
Table 2. Result:	Invertebrate ACR	0
	Lowest ACR	Default to 10

Table 2. ACR using Invertebrate data

Set #	LC_{50}	NOEC	Test ACR	Logarithm	Geomean	Antilog	ACR to Use
1	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
2	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
3	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
4	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	NO DATA

ACR for vertebrate data: 0

Convert LC_{50}'s and NOEC's to Chronic TU's for use in WLA.EXE

Table 3. ACR used: 10

	Enter LC_{50}	TUc	Enter NOEC	TUc
1		NO DATA		NO DATA
2		NO DATA		NO DATA
3		NO DATA		NO DATA
4		NO DATA		NO DATA
5		NO DATA		NO DATA
6		NO DATA		NO DATA
7		NO DATA		NO DATA
8		NO DATA		NO DATA
9		NO DATA		NO DATA
10		NO DATA		NO DATA
11		NO DATA		NO DATA
12		NO DATA		NO DATA
13		NO DATA		NO DATA
14		NO DATA		NO DATA
15		NO DATA		NO DATA
16		NO DATA		NO DATA
17		NO DATA		NO DATA
18		NO DATA		NO DATA
19		NO DATA		NO DATA
20		NO DATA		NO DATA

If WLA.EXE determines that an acute limit is needed, you need to convert the TUc answer you get to TUa and then an LC50, enter it here:

NO DATA $\%LC_{50}$

NO DATA TUa

DILUTION SERIES TO RECOMMEND

Table 4.

	Monitoring		Limit	
	% Effluent	TUc	% Effluent	TUc
Dilution series based on data mean	8.1	12.321264		
Dilution series to use for limit			4	25
Dilution factor to recommend:	0.2848868		0.2	
Dilution series to recommend:	100.0	1.00	100.0	1.00
	28.5	3.51	20.0	5.00
	8.1	12.32	4.0	25.00
	2.3	43.25	0.8	125.00
	0.66	151.81	0.2	625.00
Extra dilutions if needed	**0.19**	**532.89**	0.0	3125.00
	0.05	**1870.53**	0.0	15625.00

Cell: I9
Comment:
This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: K18
Comment: This is assuming that the data are Type 2 data (none of the data in the data set are censored - "<" or ">").

Cell: J22
Comment: Remember to change the "N" to "Y" if you have ratios entered, otherwise, they won't be used in the calculations.

Cell: C40
Comment:
If you have entered data to calculate an ACR on page 3, and this is still defaulted to "10", make sure you have selected "Y" in cell E21

Cell: C41
Comment: If you have entered data to calculate an effluent specific CV on page 2, and this is still defaulted to "0.6", make sure you have selected "Y" in cell E20

Cell: L48
Comment:
See Row 151 for the appropriate dilution series to use for these NOEC's

Cell: G62
Comment:
Vertebrates are:
Pimephales promelas
Oncorhynchus mykiss
Cyprinodon variegatus

Cell: J62
Comment:
Invertebrates are:
Ceriodaphnia dubia
Mysidopsis bahia

Cell: C117
Comment: Vertebrates are:

Pimephales promelas
Cyprinodon variegatus

Cell: M119
Comment: The ACR has been picked up from cell C34 on Page 1. If you have paired data to calculate an ACR, enter it in the tables to the left, and make sure you have a "Y" in cell E21 on Page 1. Otherwise, the default of 10 will be used to convert your acute data.

Cell: M121
Comment: If you are only concerned with acute data, you can enter it in the NOEC column for conversion and the number calculated will be equivalent to the TUa. The calculation is the same: 100/NOEC = TUc or 100/LC50 = TUa.

Cell: C138
Comment: Invertebrates are:

Ceriodaphnia dubia
Mysidopsis bahia

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in King George County, Virginia.

PUBLIC COMMENT PERIOD: XXX, 2008 to 5:00 p.m. on XXX, 2008

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: King George County Sanitation Authority, 10459 Courthouse Drive, Suite 201, King George, VA 22485, VA0026514

NAME AND ADDRESS OF FACILITY: Dahlgren Wastewater Treatment Plant, 16383 Dahlgren Road, King George, VA 22485

PROJECT DESCRIPTION: King George County Sanitation Authority has applied for a reissuance of a permit for the public Dahlgren Wastewater Treatment Plant. The applicant proposes to release treated sewage wastewaters from residential areas at a rate of 1.0 million gallons per day into a water body. The sludge will be disposed of at the King George County Landfill. The facility proposes to release treated sewage in the Williams Creek in King George in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, dissolved oxygen, $cBOD_5$, Total Suspended Solids, Enterocci bacteria, fecal coliform bacteria, Total Kjeldahl Nitrogen, Total Nitrogen (Calendar Year monthly average concentration), Total Phosphorus (Calendar Year monthly average concentration), and Whole Effluent Toxicity.

This facility is subject to the requirements of 9 VAC 25-820 and has registered for coverage under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the documents at the DEQ-Northern Regional Office by appointment.
Name: Joan C. Crowther
Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193
Phone: (540)899-4506 E-mail: jccrowther@deq.virginia.gov Fax: (703) 583-3841

Attachment 13

*Appendix A - List of Impaired (Category5) Waters in 2008**

Potomac and Shenandoah River Basins

Cause Group Code **A30E-02-SF** **Upper Machodoc Creek**

Location: Defined as Section B of the shellfish condemnation.

City / County King George Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5A

The shellfishing use is categorized as impaired due to a Virginia Department of Health, Division of Shellfish Sanitation, Notice and Description of Shellfish Area Condemnation Number 001A-036, Upper Machodoc Creek, dated 5/15/06.

Upper Machodoc Creek **Shellfishing**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	**0.029**		

Sources:

Source Unknown

Attachment 14

*Appendix A - List of Impaired (Category5) Waters in 2008**

Potomac and Shenandoah River Basins

Cause Group Code **A30E-01-PCB** **Coan River, Monroe Creek, Upper Machodoc Creek**

Location: Includes the tidal portions of the following tributaries from the Potomac River Bridge at Route 301 to the mouth of the Potomac River near Smith Point: Upper Machodoc Creek, Monroe Creek, and Coan River.

City / County King George Co. Northumberland Co. Westmoreland Co.

Use(s): Fish Consumption

Cause(s) / VA Category: PCB in Fish Tissue / 4A PCB in Fish Tissue / 5A

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. The advisory, dated 12/13/04, limits consumption of channel catfish, gizzard shad, and white perch to no more than two meals per month.

Coan River, Monroe Creek, Upper Machodoc Creek **Fish Consumption**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
PCB in Fish Tissue - Total Impaired Size by Water Type:	**1.840**		

Sources:

Atmospheric Deposition - Toxics	Combined Sewer Overflows	Contaminated Sediments	Discharges from Municipal Separate Storm Sewer Systems (MS4)
Industrial Point Source Discharge	Municipal Point Source Discharges	Non-Point Source	Source Unknown

*Appendix A - List of Impaired (Category5) Waters in 2008**

Potomac and Shenandoah River Basins

Cause Group Code **A30E-04-PH** **Williams Creek**

Location: Begins at the head of tide of Williams Creek and continues downstream until the confluence with Upper Machodoc Creek.

City / County King George Co.

Use(s): Aquatic Life

Cause(s) /
VA Category: pH / 5A

2006 Assessment: Excursions below the lower limit of the instantaneous pH criterion range (1 of 5 samples - 20.0%) from station 1aWLL001.30, at Route 206. The segment shall remain categorized as impaired.

Williams Creek **Aquatic Life**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
pH - Total Impaired Size by Water Type:	**0.148**		

Sources:

Source Unknown

*Appendix A - List of Impaired (Category5) Waters in 2008**

Potomac and Shenandoah River Basins

Cause Group Code **A30E-05-SF** **Williams Creek**

Location: Defined as Section G of the shellfish condemnation.

City / County King George Co.

Use(s): Shellfishing

Cause(s) / VA Category: Fecal Coliform / 5A

The shellfishing use is categorized as impaired due to a Virginia Department of Health, Division of Shellfish Sanitation, Notice and Description of Shellfish Area Condemnation Number 001A-036, Upper Machodoc Creek, dated 5/15/06.

Williams Creek **Shellfishing**	Estuary (Sq. Miles)	Reservoir (Acres)	River (Miles)
Fecal Coliform - Total Impaired Size by Water Type:	**0.015**		

Sources:

Source Unknown

Revised 2/2003

State "Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name:	Dahlgren Wastewater Treatment Plant
NPDES Permit Number:	VA0026514
Permit Writer Name:	Joan C. Crowther
Date:	August 12, 2008

Major [X] **Minor** [ ] **Industrial** [ ] **Municipal** [X]

I.A. Draft Permit Package Submittal Includes:	**Yes**	**No**	**N/A**
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?	X		
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?		X	
8. Whole Effluent Toxicity Test summary and analysis?	X		
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics	**Yes**	**No**	**N/A**
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet **or** permit contain a description of the wastewater treatment process?	X		
4. Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit?		X	
5. Has there been any change in streamflow characteristics since the last permit was developed?	X		
6. Does the permit allow the discharge of new or increased loadings of any pollutants?	X		
7. Does the fact sheet **or** permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8. Does the facility discharge to a 303(d) listed water?	X		
a. Has a TMDL been developed and approved by EPA for the impaired water?	X		
b. Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?	X		
c. Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9. Have any limits been removed, or are any limits less stringent, than those in the current permit?		X	
10. Does the permit authorize discharges of storm water?		X	

I.B. Permit/Facility Characteristics – cont.	Yes	No	N/A
11. Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?	X		
12. Are there any production-based, technology-based effluent limits in the permit?		X	
13. Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14. Are any WQBELs based on an interpretation of narrative criteria?		X	
15. Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16. Does the permit contain a compliance schedule for any limit or condition?		X	
17. Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18. Have impacts from the discharge(s) at downstream potable water supplies been evaluated?	X		
19. Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20. Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist

Region III NPDES Permit Quality Checklist – for POTWs
(To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (POTWs)	Yes	No	N/A
1. Does the permit contain numeric limits for ALL of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?		X	
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL?		X	
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a "reasonable potential" evaluation was performed?		X	
a. If yes, does the fact sheet indicate that the "reasonable potential" evaluation was performed in accordance with the State's approved procedures?			X
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?			X
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have "reasonable potential"?			X
d. Does the fact sheet indicate that the "reasonable potential" and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?			X
e. Does the permit contain numeric effluent limits for all pollutants for which "reasonable potential" was determined?			X

II.D. Water Quality-Based Effluent Limits – cont.	Yes	No	N/A
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an "antidegradation" review was performed in accordance with the State's approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?			X
4. Does the permit require testing for Whole Effluent Toxicity?	X		

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?	X		
2. Does the permit include appropriate storm water program requirements?		X	

II.F. Special Conditions – cont.	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?	X		
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?		X	
a. Does the permit require implementation of the "Nine Minimum Controls"?			X
b. Does the permit require development and implementation of a "Long Term Control Plan"?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate Pretreatment Program requirements?	X		

II.G. Standard Conditions	Yes	No	N/A
1. Does the **permit** contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?	X		

List of Standard Conditions – 40 CFR 122.41

Duty to comply	Property rights	Reporting Requirements
Duty to reapply	Duty to provide information	Planned change
Need to halt or reduce activity not a defense	Inspections and entry	Anticipated noncompliance
Duty to mitigate	Monitoring and records	Transfers
Proper O & M	Signatory requirement	Monitoring reports
Permit actions	Bypass	Compliance schedules
	Upset	24-Hour reporting
		Other non-compliance

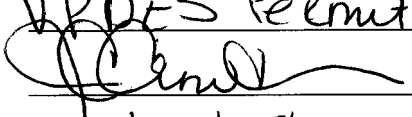
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?	X		

Part III. Signature Page

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name Joan C. Crowther

Title WPDES Permit Writer

Signature 

Date 8/12/08